February 2017 | Draft Environmental Impact Report
State Clearinghouse No. 2016011073

CORONA DEL MAR MIDDLE AND HIGH SCHOOL SPORTS FIELD PROJECT

Newport-Mesa Unified School District

Prepared for:

Newport-Mesa Unified School District
Contact: Ara K. Zareczny, LEED AP
Director, Facilities Development, Planning and Design
2985 Bear Street, Bldg. E
Costa Mesa, California 92626
714.424.7522

Prepared by:

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

PLACEWORKS

Table of Contents

Contents **Page**

Table of Contents

Contents **Page**

Table of Contents

Contents **Page**

Table of Contents

Contents **Page**

Table of Contents

Contents **Page**

Table of Contents

APPENDICES

Table of Contents

Table of Contents

Table of Contents

Table of Contents

ABBREVIATIONS AND ACRONYMS

AAQS	ambient air quality standards
AB	Assembly Bill
ACM	asbestos-containing materials
ADT	average daily traffic
amsl	above mean sea level
AQMP	air quality management plan
AST	aboveground storage tank
BAU	business as usual
bgs	below ground surface
BMP	best management practices
CAA	Clean Air Act
CAFE	corporate average fuel economy
CalARP	California Accidental Release Prevention Program
CalEMA	California Emergency Management Agency
Cal/EPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CALGreen	California Green Building Standards Code
Cal/OSHA	California Occupational Safety and Health Administration
CalRecycle	California Department of Resources, Recycling, and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDE	California Department of Education
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
cfs	cubic feet per second
CGS	California Geologic Survey
CMP	congestion management program

Abbreviations and Acronyms

CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
Corps	US Army Corps of Engineers
CSO	combined sewer overflows
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EIR	environmental impact report
EPA	United States Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	greenhouse gases
GWP	global warming potential
HCM	Highway Capacity Manual
HQTA	high quality transit area
HVAC	heating, ventilating, and air conditioning system
IPCC	Intergovernmental Panel on Climate Change
L_{dn}	day-night noise level
L_{eq}	equivalent continuous noise level
LBP	lead-based paint
LCFS	low-carbon fuel standard
LOS	level of service
LST	localized significance thresholds
M_W	moment magnitude
MCL	maximum contaminant level
MEP	maximum extent practicable

mgd	million gallons per day
MMT	million metric tons
MPO	metropolitan planning organization
MT	metric ton
MWD	Metropolitan Water District of Southern California
NAHC	Native American Heritage Commission
NO_X	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
O_3	ozone
OES	California Office of Emergency Services
PM	particulate matter
POTW	publicly owned treatment works
ppm	parts per million
PPV	peak particle velocity
RCRA	Resource Conservation and Recovery Act
REC	recognized environmental condition
RMP	risk management plan
RMS	root mean square
RPS	renewable portfolio standard
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SIP	state implementation plan
SLM	sound level meter
SoCAB	South Coast Air Basin
SO_X	sulfur oxides
SQMP	stormwater quality management plan
SRA	source receptor area [or state responsibility area]
SUSMP	standard urban stormwater mitigation plan
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board

Abbreviations and Acronyms

TAC	toxic air contaminants
TNM	transportation noise model
tpd	tons per day
TRI	toxic release inventory
TTCP	traditional tribal cultural places
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UWMP	urban water management plan
V/C	volume-to-capacity ratio
VdB	velocity decibels
VHFHSZ	very high fire hazard severity zone
VMT	vehicle miles traveled
VOC	volatile organic compound
WQMP	water quality management plan
WSA	water supply assessment

1. Executive Summary

1.1 INTRODUCTION

This draft environmental impact report (DEIR) addresses the environmental effects associated with the implementation of the proposed Corona del Mar Middle and High School Sports Field project. The California Environmental Quality Act (CEQA) requires that government agencies consider the environmental consequences before taking action on projects over which they have discretionary approval authority. An environmental impact report (EIR) analyzes potential environmental consequences in order to inform the public and support informed decisions by local and state governmental agency decision makers. This document focuses on impacts determined to be potentially significant in the Recirculated Initial Study completed for this project (see Appendix A2).

This DEIR has been prepared pursuant to the requirements of CEQA and the Newport-Mesa Unified School District's (N-MUSD or District) CEQA procedures. The N-MUSD, as the lead agency, has reviewed and revised all submitted drafts, technical studies, and reports as necessary to reflect its own independent judgment, including review of all technical subconsultant reports.

Data for this DEIR derive from onsite field observations, discussions with affected agencies, analysis of adopted plans and policies, review of available studies, reports, data and similar literature, and specialized environmental assessments (aesthetics, air quality, cultural resources, noise, and transportation and traffic).

1.2 ENVIRONMENTAL PROCEDURES

This DEIR has been prepared pursuant to CEQA to assess the environmental effects associated with implementation of the proposed project, as well as anticipated future discretionary actions and approvals. CEQA established six main objectives for an EIR:

1. Disclose to decision makers and the public the significant environmental effects of proposed activities.
2. Identify ways to avoid or reduce environmental damage.
3. Prevent environmental damage by requiring implementation of feasible alternatives or mitigation measures.
4. Disclose to the public reasons for agency approval of projects with significant environmental effects.
5. Foster interagency coordination in the review of projects.
6. Enhance public participation in the planning process.

An EIR is the most comprehensive form of environmental documentation in CEQA and the CEQA Guidelines; it is intended to provide an objective, factually supported analysis and full disclosure of the environmental consequences of a proposed project with the potential to result in significant, adverse environmental impacts.

An EIR is one of various decision-making tools used by a lead agency to consider the merits and disadvantages of a project that is subject to its discretionary authority. Before approving a proposed project, the lead agency must consider the information in the EIR; determine whether the EIR was prepared in accordance with CEQA and the CEQA Guidelines; determine that it reflects the independent judgment of the lead agency; adopt findings concerning the project's significant environmental impacts and alternatives; and adopt a statement of overriding considerations if significant impacts cannot be avoided.

1.2.1 EIR Format

Chapter 1. Executive Summary: Summarizes the background and description of the proposed project, the format of this EIR, project alternatives, any critical issues remaining to be resolved, and the potential environmental impacts and mitigation measures identified for the project.

Chapter 2. Introduction: Describes the purpose of this EIR, background on the project, the notice of preparation, the use of incorporation by reference, and Final EIR certification.

Chapter 3. Project Description: A detailed description of the project, including its objectives, its area and location, approvals anticipated to be required as part of the project, necessary environmental clearances, and the intended uses of this EIR.

Chapter 4. Environmental Setting: A description of the physical environmental conditions in the vicinity of the project as they existed at the time the notice of preparation was published, from local and regional perspectives. These provide the baseline physical conditions from which the lead agency determines the significance of the project's environmental impacts.

Chapter 5. Environmental Analysis: Each environmental topic is analyzed in a separate section that discusses: the thresholds used to determine if a significant impact would occur; the methodology to identify and evaluate the potential impacts of the project; the existing environmental setting; the potential adverse and beneficial effects of the project; the level of impact significance before mitigation; the mitigation measures for the proposed project; the level of significance after mitigation is incorporated; and the potential cumulative impacts of the proposed project and other existing, approved, and proposed development in the area.

Chapter 6. Significant Unavoidable Adverse Impacts: Describes the significant unavoidable adverse impacts of the proposed project.

Chapter 7. Alternatives to the Proposed Project: Describes the alternatives and compares their impacts to the impacts of the proposed project. Alternatives include the No Project Alternative and a Reduced Intensity Alternative.

Chapter 8. Impacts Found Not to Be Significant: Briefly describes the potential impacts of the project that were determined not to be significant by the Initial Study and were therefore not discussed in detail in this EIR.

Chapter 9. Significant Irreversible Changes Due to the Proposed Project: Describes the significant irreversible environmental changes associated with the project.

Chapter 10. Growth-Inducing Impacts of the Project: Describes the ways in which the proposed project would cause increases in employment or population that could result in new physical or environmental impacts.

Chapter 11. Organizations and Persons Consulted: Lists the people and organizations that were contacted during the preparation of this EIR.

Chapter 12. Qualifications of Persons Preparing EIR: Lists the people who prepared this EIR for the proposed project.

Chapter 13. Bibliography: The technical reports and other sources used to prepare this EIR.

Appendices: The appendices for this document (in PDF format on a CD attached to the front cover) comprise these supporting documents:

- Appendix A1: 1st NOP/Initial Study
- Appendix A2: Recirculated NOP/Initial Study
- Appendix B1: Response to 1st NOP/Initial Study
- Appendix B2: Response to Recirculated NOP/Initial Study
- Appendix C: Lighting Plans
- Appendix D: Air Quality/GHG Modeling Data
- Appendix E: Cultural Resources Data
- Appendix F: Noise Data
- Appendix G1: Traffic Study
- Appendix G2: Event Traffic Management Plan

1.2.2 Type and Purpose of This DEIR

This DEIR has been prepared as a "Project EIR," defined by Section 15161 of the CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3). This type of EIR examines the environmental impacts of a specific development project and should focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all phases of the project including planning, construction, and operation.

1.3 PROJECT LOCATION

Corona del Mar Middle and High School (project site, CdM MS/HS, or CdM campus) is at 2101 Eastbluff Drive (Assessor's Parcel Map Number 440-092-06), City of Newport Beach, Orange County, California (Figure 3-1, *Regional Location*). The CdM MS/HS Sports Field Project would disturb approximately six acres at the northeast corner of the CdM campus; minor changes may occur at other areas of the campus—such as physical changes to signage, fencing, pathways, placement of gates, etc.—and possible operational changes may include time and use of fields and parking lots. The existing sports field is bounded by Vista del Oro to the north, Eastbluff Drive to the east, student parking and tennis courts to the south, and turf athletic field to the west. The City of Newport Beach is surrounded by the cities of Costa Mesa and Irvine and is adjacent to John Wayne Airport in unincorporated Orange County, Crystal Cove State Park, Santa Ana River, and Banning Ranch in unincorporated Orange County in the city's sphere of influence. The regional access to the CdM campus is State Route (SR) 73, approximately 1.3 miles to the north. The CdM campus is irregularly shaped and bordered by Vista Del Oro to the north, Mar Vista Drive to the west and south, and Eastbluff Drive to the east (Figure 3-2, *Local Vicinity*).

1.4 PROJECT SUMMARY

The proposed project consists of replacement and reconfiguration of the existing natural-turf field and rubber track with synthetic-turf field and track and construction of 1,000-seat capacity bleachers (700 home side and 300 visitor side), a press-box, public address (PA) system, and nighttime lighting with four 80-foot poles. The proposed project would include an approximately 3,000-square-foot building with two ticket booths, two restroom areas, a main concession area, and storage. Creation of the reconfigured sports field would disturb approximately 6 acres of the approximately 37-acre campus. Other minor physical changes identified for other parts of the campus as plans are completed would include signage, fencing, pathways, and placement of gates, etc. The proposed site plan is shown in Figure 3-4, *Proposed Site Plan*.

1.5 SUMMARY OF PROJECT ALTERNATIVES

While the District considered various options and recommendations during scoping process, the final selection of alternatives was based on the CEQA Guidelines Section 15126.6[f], which states that the selection of alternative shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. The Draft EIR identified only an operational noise impact during special events as a significant impact.

The following lists alternatives considered during the scoping and planning process but were rejected for detailed analysis in the DEIR for the reasons described in Section 7.3, *Alternatives Rejected from Further Review*:

- Alternative Sites
- Alternative Public Address Technologies
- Alternative Lighting Technologies/Pole Heights
- Parking Garage Alternative

Based on the criteria listed in Section 7.1.1, the following three alternatives have been determined to represent a reasonable range of alternatives that have the potential to feasibly attain most of the basic objectives of the project, but may avoid or substantially lessen any of the significant effects of the project. These alternatives are analyzed in detail in the following sections.

- No Project Alternative
- Community Plan Alternative 1: Two Fields with Reduced Capacity and No Lights
- Community Plan Alternative 2: Two Fields with Reduced Capacity and Portable Lights
- Community Plan Alternative 3: Two Fields with Reduced Capacity and Permanent Lights

1.6 ALTERNATIVES SELECTED FOR FURTHER ANALYSIS

1.6.1 No Project Alternative

The CEQA Guidelines requires the analysis of a No Project Alternative. This analysis must discuss the existing site conditions as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved. Under the No Project Alternative, the proposed synthetic turf field and track, 1,000-seat capacity bleachers, 80-foot light poles, and home ticket booth and concession building would not be constructed. The existing track and field would continue to be used only during the day time, and CdM MS/HS students would continue to travel to other facilities in the District for some practices and games. This alternative would not meet any of the project objectives.

1.6.2 Community Plan Alternative 1: Two Fields With Reduced Capacity and No Lights

This alternative would provide two synthetic fields as shown in Figure 7-2, *Two Fields with Reduced Capacity and No Lights Alternative Plan*, with no nighttime lighting, and reduce the bleacher seat capacity to 664 seats from 1,000 seats. All seating would be provided on the south side of the main field, and no noise wall on the north side would be provided. As with the proposed project, a partially localized PA system would be installed. This alternative would reduce significant and unavoidable operational noise impacts emanating from the visitor side bleachers and reduce aesthetic impacts from the 80-foot lights. With 664-seat bleachers, a separate restroom/ticket/concession building would not be provided, as it would not be required under the Division of the State Architect (DSA) requirement. Two synthetic fields would allow increased field usage with minimal scheduling conflicts and reduce injuries from uneven or compacted turf. However, no nighttime practices or games would occur under this alternative.

1.6.3 Community Plan Alternative 2: Two Fields With Reduced Capacity and Portable Lights

This alternative would provide two synthetic fields with a portable lighting system and reduce bleacher seat capacity to 664 seats. All seats would be provided on the south side of the main field, and no noise wall on the north side would be constructed. Five portable light poles would be provided, as shown in Figure 7-3, *Two*

Fields with Reduced Capacity and Portable Lights Alternative Plan, which could be relocated to the second practice field. Portable lights would allow occasional nighttime games and nighttime practices. A partially localized PA system would be provided. This alternative would reduce operational noise impacts emanating from the visitor-side bleachers and reduce aesthetic impacts. With 664-seat capacity bleachers, a separate restroom/ticket/concession building would not be provided, since it would not be required by the DSA. Two synthetic fields would allow increased field usage with minimal scheduling conflicts and reduce injuries from uneven and compacted turf.

1.6.4 Community Plan Alternative 3: Two Fields With Reduced Capacity and Permanent Lights

This alternative would provide two synthetic fields with metal halide permanent lighting systems on both fields and reduce bleacher seat capacity to 664 seats. All seats would be provided on the south side of the main field, and no noise wall on the north side would be constructed. No permanent bleachers would be provided on the second field and a partially localized PA system would be provided on the main field only. Four permanent light poles would be provided on the main field as well as the second field, as shown in Figure 7-5, *Two Fields with Reduced Capacity and Permanent Lights Alternative Plan*. Permanent lights would allow nighttime games and practices on both fields simultaneously. This alternative would reduce operational noise impacts emanating from the visitor-side bleachers during events. With 664-seat capacity bleachers, a separate restroom/ticket/concession building would not be provided, since it would not be required by the DSA. Two synthetic fields with lights would allow increased field usage with minimal scheduling conflicts and reduce injuries from uneven and compacted turf.

1.7 ISSUES TO BE RESOLVED

Section 15123(b)(3) of the CEQA Guidelines requires that an EIR contain issues to be resolved, including the choice among alternatives and whether or how to mitigate significant impacts. With regard to the proposed project, the major issues to be resolved include decisions by the lead agency as to:

1. Whether this DEIR adequately describes the environmental impacts of the project.
2. Whether the benefits of the project override those environmental impacts which cannot be feasibly avoided or mitigated to a level of insignificance.
3. Whether the proposed land use changes are compatible with the character of the existing area.
4. Whether the identified goals, policies, or mitigation measures should be adopted or modified.
5. Whether there are other mitigation measures that should be applied to the project besides the Mitigation Measures identified in the DEIR.
6. Whether there are any alternatives to the project that would substantially lessen any of the significant impacts of the proposed project and achieve most of the basic project objectives.

1.8 AREAS OF CONTROVERSY

The areas of controversy includes issues on related to aesthetics, especially the spill light and glare impacts from 80-foot nighttime lighting, noise from a large crowd and PA system, and traffic congestion and parking issues from practices and spectator events. Comments received during circulation of the first NOP/IS are included in Appendix B1 and comments received during recirculation of the Recirculated NOP/IS are included in Appendix B2.

1.9 SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND LEVELS OF SIGNIFICANCE AFTER MITIGATION

Table 1-1 summarizes the conclusions of the environmental analysis contained in this EIR. Impacts are identified as significant or less than significant, and mitigation measures are identified for all significant impacts. The level of significance after imposition of the mitigation measures is also presented.

1. Executive Summary

This page intentionally left blank.

Table 1-1 Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
5.1 AESTHETICS			
Impact 5.1-1: The proposed project would not adversely affect any scenic vista or alter scenic resources within a state scenic highway.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.
Impact 5.1-2: The proposed project would alter, but would not degrade the visual appearance of the project site.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.
Impact 5.1-3: The proposed project would generate new sources of light and glare.	Potentially Significant	AE-1 Newport-Mesa Unified School District shall perform field light measurements after the lighting pole installation to demonstrate that actual spill light levels near the adjacent residential units to the north are a close match to the levels indicated in the light levels plan shown in Figure 5.1-11, Lighting Levels Plan (Horizontal), and Figure 5.1-13, Lighting Levels Plan (Vertical). The vertical light levels at the vertical surface of any residential unit shall not exceed 0.8 foot-candle, and each luminaire affixed on the pole shall be fully shielded and adjusted so that no direct upward beam permitted.	Less Than Significant.
5.2 AIR QUALITY			
Impact 5.2-1: The proposed project would be consistent with the South Coast Air Quality Management District's Air Quality Management Plan.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.
Impact 5.2-2: Construction activities associated with implementation of the proposed project would not generate short-term emissions that exceed the South Coast Air Quality Management District's regional thresholds.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.
Impact 5.2-3: Long-term criteria air pollutant emissions associated with the proposed project would not exceed the South Coast Air Quality Management District's regional operational significance thresholds.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.

1. Executive Summary

Table 1-1 Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures		Level of Significance After Mitigation
Impact 5.2-4: Construction of the proposed project would not expose sensitive receptors to substantial pollutant concentrations.	Less Than Significant	No mitigation measures are necessary.		Less Than Significant.
Impact 5.2-5: Operation of the proposed project would not expose offsite sensitive receptors to substantial concentrations of air pollutants.	Less Than Significant	No mitigation measures are necessary.		Less Than Significant.
5.3 CULTURAL RESOURCES				
Impact 5.3-1: Development of the project could adversely impact archaeological resources.	Potentially Significant	CUL-1	Prior to the issuance of the first grading permit and/or action that would permit disturbance to the project site, the Newport-Mesa Unified School District shall retain a qualified archaeological monitor to observe grading activities and to salvage and catalogue archaeological resources, including tribal resources, as necessary. The qualified monitor shall be invited to be present at the pregrading conference; shall establish procedures for archaeological resource surveillance; and shall establish, in cooperation with the construction contractor, procedures for temporary halting or redirecting work to permit the sampling, identification, and evaluation of the artifacts, as appropriate. Should archaeological resources, including tribal resources, be found during ground-disturbing activities, the qualified monitor shall first determine whether the resource is a “unique archaeological resource” pursuant to Section 21083.2(g) of the California Public Resources Code or a “ historical resource” pursuant to Section 15064.5(a) of the State CEQA Guidelines (14 California Code of Regulations). Once the determination is made pursuant to CEQA Guidelines Section 21083.2, the appropriate actions shall be taken in appropriate sections of the regulations to ensure that impacts are reduced to a less than significant level.	Less Than Significant

Table 1-1 Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 5.3-2: The proposed project could adversely impact paleontological resources.	Potentially Significant	CUL-2 Prior to the beginning of ground disturbances, the Newport-Mesa Unified School District shall retain a qualified paleontologist to monitor ground-disturbing activities that occur in older Quaternary Alluvium and terrace deposits and older sedimentary deposits. 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.	Less Than Significant
5.4 GREENHOUSE GAS EMISSIONS			
Impact 5.4-1: Development of the proposed project would not result in a substantial increase of GHG emissions that would exceed the South Coast Air Quality Management District's significance criteria.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.
Impact 5.4-2: The proposed project would not conflict with the California Air Resources Board's Scoping Plan or the Southern California Association of Governments' 2016-2040 Regional Transportation Plan / Sustainable Communities Strategy.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.
5.5 HYDROLOGY AND WATER QUALITY			
Impact 5.5-1: Development of the proposed project could alter the existing drainage pattern or contribute runoff water that could exceed the capacity of the existing or planned stormwater drainage system.	Potentially Significant	HYD-1 Prior to grading, the District shall prepare a water quality management plan (WQMP) for the project. The WQMP shall be submitted and approved by the City of Newport Beach Community Development Department, Building Division. The WQMP shall include appropriate BMPs and LID measures to ensure that project runoff is treated and temporarily detained in accordance with the requirements of the Orange County MS4 Permit and the Orange County Drainage Area Master Plan. HYD-2 Future site grading and construction activities shall comply with drainage controls imposed by the applicable municipal code requirements for the City of Newport Beach.	Less Than Significant.

1. Executive Summary

Table 1-1 Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 5.5-2: Compliance with the required Construction General Permit would ensure that development of the proposed project would not result in substantial additional sources of polluted runoff.	Potentially Significant	HYD-3 Prior to grading, a Storm Water Pollution Prevention Plan (SWPPP) and Notice of Intent (NOI) to comply with the General Construction Permit shall be prepared, submitted to the State Water Resources Control Board (SWRCB), and made part of the construction program. The SWPPP shall detail measures and practices that will be in effect during construction to minimize the project's impact on water quality and minimize the potential for erosion and sedimentation.	Less Than Significant.
5.6 NOISE			
Impact 5.6-1: Project implementation would result in long-term operation-related noise impact that would not exceed local standards.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.
Impact 5.6-2: Sports field noise would result in substantial temporary noise increases at nearby homes and there would be exceedances of the City's exterior and interior noise limits.	Potentially Significant	N-1 Prior to holding the first spectator event, the Newport-Mesa Unified School District (N-MUSD) shall develop and enforce a good-neighbor policy for sports field events. Signs shall be erected at entry points that state prohibited activities during an event (e.g., use of air horns, unapproved audio amplification systems, bleacher foot-stomping, boisterous activity in parking lots upon exiting the field) and monitored by the N-MUSD staff. N-2 During subsequent design phases of the bleachers and PA system, the Newport-Mesa Unified School District's sound system contractor shall create a Stadium Sound System Design Plan. The project's sound system design goal should be to optimize conveying information to the event attendees while minimizing off-site spill-over effects. The design shall aim at incorporating as many low-power speakers as practical that are located as close to the event attendees as practical. The design should include specifications that optimize the sound system for speaker placement, speaker dispersion pattern, and speaker acoustic output. The design goal should be a Speech Transmission Index (STI) of 0.65 or greater (or, equivalently, a Common Intelligibility Scale (CIS) of 0.83 or greater). Prior to the first sports field event, the public address system contractor should perform a system check-out to verify appropriate sound levels in the seating areas, as well as minimized spill-over sound levels into the adjacent community areas. N-3 Prior to holding the first spectator event, the Newport-Mesa Unified School District shall construct a barrier wall system along the rear of the visitor side	Significant and Unavoidable

Table 1-1 Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		bleachers. Based on the analysis in this report, the barrier should extend 5.5 feet above the back end of the visitor side bleachers, and extend approximately 11 feet to the east and west of the ends of the bleachers. Given the complex geometry, the wall shall be optimized through detailed acoustical investigations considering the cost-benefit ratio for the sound barrier wall in terms of benefits at the most-affected sensitive receptors.	
Impact 5.6-3: The proposed project would not create short-term or long-term groundborne vibration and groundborne noise.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.
Impact 5.6-4: Construction activities would not result in temporary noise increases in the vicinity of the proposed project.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.
5.7 PUBLIC SERVICES			
FIRE PROTECTION AND EMERGENCY SERVICES			
Impact 5.7-1: The proposed project would not have adverse physical impacts on the city's fire protection services.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.
POLICE PROTECTION			
Impact 5.7-2: The proposed project would not have adverse physical impacts on the city's police protection services.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.
5.8 RECREATION			
Impact 5.8-1: The proposed project would increase the use of existing park and recreational facilities, but would not result in substantial physical deterioration of the facilities.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.

1. Executive Summary

Table 1-1 Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
5.9 TRANSPORTATION/TRAFFIC			
Impact 5.9-1: Project-related trip generation would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system with the exception of one intersection at buildout.	Potentially Significant	TRAN-1 Newport-Mesa Unified School District shall coordinate with the City of Newport Beach to implement a minor signal timing change to increase cycle time by 10 seconds at the Jamboree Boulevard and University Drive/Eastbluff Drive intersection.	Less Than Significant.
Impact 5.9-2: The proposed project would not conflict with the Orange County Congestion Management Program.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.
Impact 5.9-3: The proposed project would not substantially increase hazards due to a design feature or inadequate emergency access.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.
Impact 5.9-4: The project implementation would not result in inadequate parking capacity impact.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.
5.10 Energy Resources			
Impact 5.10-1: The proposed project would increase the demand for electrical services but would not require new or expanded electrical infrastructure for the provider or result in wasteful electrical energy consumption.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.
Impact 5.10-2: The proposed project would not increase the demand for natural gas services to require new or expanded natural gas capacity for the provider or result in wasteful natural gas energy consumption.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.

1. Executive Summary

Table 1-1 Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 5.10-3: The proposed project would not result in increased demand for transportation energy, would not require new or expanded transportation energy capacity for the provider, and would not result in wasteful transportation energy consumption.	Less Than Significant	No mitigation measures are necessary.	Less Than Significant.

1. Executive Summary

This page intentionally left blank.

2. Introduction

2.1 PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT

The California Environmental Quality Act (CEQA) requires that all state and local governmental agencies consider the environmental consequences of projects over which they have discretionary authority before taking action on those projects. This draft environmental impact report (DEIR) has been prepared to satisfy CEQA and the CEQA Guidelines. The environmental impact report (EIR) is the public document designed to provide decision makers and the public with an analysis of the environmental effects of the proposed project, to indicate possible ways to reduce or avoid environmental damage and to identify alternatives to the project. The EIR must also disclose significant environmental impacts that cannot be avoided; growth inducing impacts; effects not found to be significant; and significant cumulative impacts of all past, present, and reasonably foreseeable future projects.

The lead agency means "the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect upon the environment" (Guidelines § 21067). The Newport-Mesa Unified School District (N-MUSD or District) has the principal responsibility for approval of the Corona del Mar Middle and High School (CdM MS/HS) Sports Field Project (proposed project). For this reason, the N-MUSD is the CEQA lead agency for this project.

The intent of the DEIR is to provide sufficient information on the potential environmental impacts of the CdM MS/HS Sports Field Project to allow the N-MUSD to make an informed decision regarding approval of the project. Specific discretionary actions to be reviewed by the City are described in Section 3.4, *Intended Uses of the EIR*.

This DEIR has been prepared in accordance with requirements of the:

- California Environmental Quality Act (CEQA) of 1970, as amended (Public Resources Code, §§ 21000 et seq.)
- State Guidelines for the Implementation of the CEQA of 1970 (CEQA Guidelines), as amended (California Code of Regulations, §§ 15000 et seq.)

The overall purpose of this DEIR is to inform the lead agency, responsible agencies, decision makers, and the general public about the environmental effects of the development and operation of the proposed project. This DEIR addresses effects that may be significant and adverse; evaluates alternatives to the project; and identifies mitigation measures to reduce or avoid adverse effects.

2.2 NOTICE OF PREPARATION AND INITIAL STUDY

The Newport-Mesa Unified School District determined that an EIR would be required for this project and held an informational community meeting on January 25, 2016, prior to issuance of a Notice of Preparation (NOP) and Initial Study. The District prepared and issued an NOP/IS on February 1, 2016 (see Appendix A1). Comments received during this public review period, from February 1, 2016, to March 1, 2016, are in Appendix B1. A Scoping Meeting was held on February 22, 2016, at the Corona del Mar MS/HS Lecture Hall, 2101 Eastbluff Drive.

In order to better respond to the community concerns received during the scoping period, the District prepared and released a Recirculated NOP/IS that circulated for a 60-day review period, from March 25, 2016, to May 23, 2016 (see Appendix A2). The comments received during the recirculation period are in Appendix B2. A Scoping Meeting for the Recirculated NOP/IS was held on March 28, 2016, at the Corona del Mar MS/HS Lecture Hall.

The NOP process helps determine the scope of the environmental issues to be addressed in the DEIR. Based on this process and the initial study for the project, certain environmental categories were identified as having the potential to result in significant impacts. Issues considered Potentially Significant are addressed in this DEIR, but issues identified as Less Than Significant or No Impact are not. Refer to the Recirculated Initial Study in Appendix A2 for discussion of how these initial determinations were made.

2.3 SCOPE OF THIS DEIR

The scope of the DEIR was determined based on the District's initial studies, comments received in response to the NOPs, and comments received at the scoping meetings conducted by the District. Pursuant to Sections 15126.2 and 15126.4 of the CEQA Guidelines, the DEIR should identify any potentially significant adverse impacts and recommend mitigation that would reduce or eliminate these impacts to levels of insignificance.

The information in Chapter 3, *Project Description*, establishes the basis for analyzing project-related environmental impacts.

2.3.1 Impacts Considered Less Than Significant

The Recirculated Initial Study determined that eight environmental impact categories were not significantly affected by or did not affect the proposed project. These categories are not discussed in detail in this DEIR.

- Agriculture and Forestry Resources
- Biological Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Land Use and Planning
- Mineral Resources

- Population and Housing
- Utilities and Service Systems

2.3.2 Potentially Significant Adverse Impacts

The District determined that nine environmental factors have potentially significant impacts if the proposed project is implemented.

- Aesthetics
- Air Quality
- Cultural Resources
- Greenhouse Gas Emissions
- Hydrology and Water Quality
- Noise
- Public Services
- Recreation
- Transportation/ Traffic
- Energy

2.3.3 Unavoidable Significant Adverse Impacts

This DEIR identifies one significant and unavoidable adverse impact, as defined by CEQA, that would result from implementation of the proposed project. Unavoidable adverse impacts may be considered significant on a project-specific basis, cumulatively significant, and/or potentially significant. The City must prepare a "statement of overriding considerations" before it can approve the project, attesting that the decision-making body has balanced the benefits of the proposed project against its unavoidable significant environmental effects and has determined that the benefits outweigh the adverse effects, and therefore the adverse effects are considered acceptable. The impacts that were found in the DEIR to be significant and unavoidable are:

- Noise

2.4 INCORPORATION BY REFERENCE

Some documents are incorporated by reference into this DEIR, consistent with Section 15150 of the CEQA Guidelines, and they are available for review at the District Office.

- *City of Newport Beach General Plan (2006).* The 2006 General Plan serves as the major blueprint for directing growth within the City of Newport Beach and presents a comprehensive plan to accommodate the City's growing needs. Currently this document regulates the existing land uses on the proposed project site. The General Plan analyzes existing conditions in the City, including physical, social, cultural, and environmental resources and opportunities. It also looks at trends, issues, and concerns that affect the region, describes City goals and objectives, and provides policies to guide development and change.

- *City of Newport Beach General Plan Environmental Impact Report (2006)*. The General Plan EIR examined the potential effects of the City's General Plan implementation pursuant to Section 15168 of the CEQA Guidelines. It reviewed the existing conditions of the City of Newport Beach and the Planning Area at the time of EIR preparation, analyze potential environmental impacts from implementation of the General Plan, identified policies from the General Plan that served to reduce and minimize impacts, and identified additional mitigation measures, if necessary, to reduce potentially significant impacts of the General Plan. However, it did not focus on any specific development projects within the City.

2.5 FINAL EIR CERTIFICATION

This DEIR is being circulated for public review for 45 days. Interested agencies and members of the public are invited to provide written comments on the DEIR to the address shown on the title page of this document. Upon completion of the 45-day review period, the District will review all written comments received and prepare written responses for each. A Final EIR (FEIR) will incorporate the received comments, responses to the comments, and any changes to the DEIR that result from comments. The FEIR will be presented to the N-MUSD Board of Education for potential certification as the environmental document for the project. All persons who comment on the DEIR will be notified of the availability of the FEIR and the date of the public hearing before the District.

The DEIR is available to the general public for review at various locations:

- **Newport-Mesa Unified School District**
  Education Center
  2985 Bear Street, Building A
  Costa Mesa, California 92626
- **Corona del Mar MS/HS**
  Administrative Office
  2101 Eastbluff Drive
  Newport Beach, CA 92660

2.6 MITIGATION MONITORING

Public Resources Code, Section 21081.6, requires that agencies adopt a monitoring or reporting program for any project for which it has made findings pursuant to Public Resources Code 21081 or adopted a Negative Declaration pursuant to 21080(c). Such a program is intended to ensure the implementation of all mitigation measures adopted through the preparation of an EIR or Negative Declaration.

The Mitigation Monitoring Program for the CdM MS/HS Sports Field Project will be completed as part of the Final EIR, prior to consideration of the project by the N-MUSD Board of Education.

3. Project Description

3.1 PROJECT LOCATION

Corona del Mar Middle and High School (project site or CdM campus) is at 2101 Eastbluff Drive (Assessor's Parcel Map Number 440-092-06), City of Newport Beach, Orange County, California (Figure 3-1, *Regional Location*). The CdM MS/HS Sports Field Project would disturb approximately six acres at the northeast corner of the CdM campus; minor changes may occur at other areas of the campus—such as physical changes to signage, fencing, pathways, placement of gates, etc.—and possible operational changes may include time and use of fields and parking lots. The existing sports field is bounded by Vista del Oro to the north, Eastbluff Drive to the east, student parking and tennis courts to the south, and turf athletic field to the west. The City of Newport Beach is surrounded by the cities of Costa Mesa and Irvine and is adjacent to John Wayne Airport in unincorporated Orange County, Crystal Cove State Park, Santa Ana River, and Banning Ranch in unincorporated Orange County in the city's sphere of influence. The regional access to the CdM campus is State Route (SR) 73, approximately 1.3 miles to the north. The CdM campus is irregularly shaped and bordered by Vista Del Oro to the north, Mar Vista Drive to the west and south, and Eastbluff Drive to the east (Figure 3-2, *Local Vicinity*).

3.2 STATEMENT OF OBJECTIVES

The following objectives have been established for the CdM MS/HS Sports Field Project and will aid decision makers in their review of the project and project alternatives.

- Provide bleachers with a maximum seating capacity of 1,000 seats, adequate to accommodate certain limited spectator events currently held off campus.
- Provide lighting to allow night use of the sports field to accommodate school-related events and activities.
- Enhance opportunities for after-school athletic and extracurricular activities.
- Enhance school pride by allowing home football games to occur on campus.
- Reduce the travel time and vehicle miles for home football games.
- Reduce the amount of District funds associated with transportation to and from off-campus event venues.
- Upgrade the athletic fields to boost student participation in athletics.

- Improve the safety and security systems at the sports field.
- Allow use of the facility by District-approved community groups per the adopted Board Policy 1330 Use of School Facilities.

3.3 PROJECT CHARACTERISTICS

"Project" means the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and that is any of the following:

(1) An activity directly undertaken by any public agency.

(2) An activity undertaken by a person which is supported in whole or in part through public agency contacts, grants, subsidies, loans, or other forms of assistance from one or more public agencies.

(3) An activity involving the issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies. (Public Resources Code § 21065; 14 California Code of Regulations § 15378[a])

The proposed project involves an activity undertaken by a public agency to make improvements to an existing public facility; the proposed project is a project under CEQA.

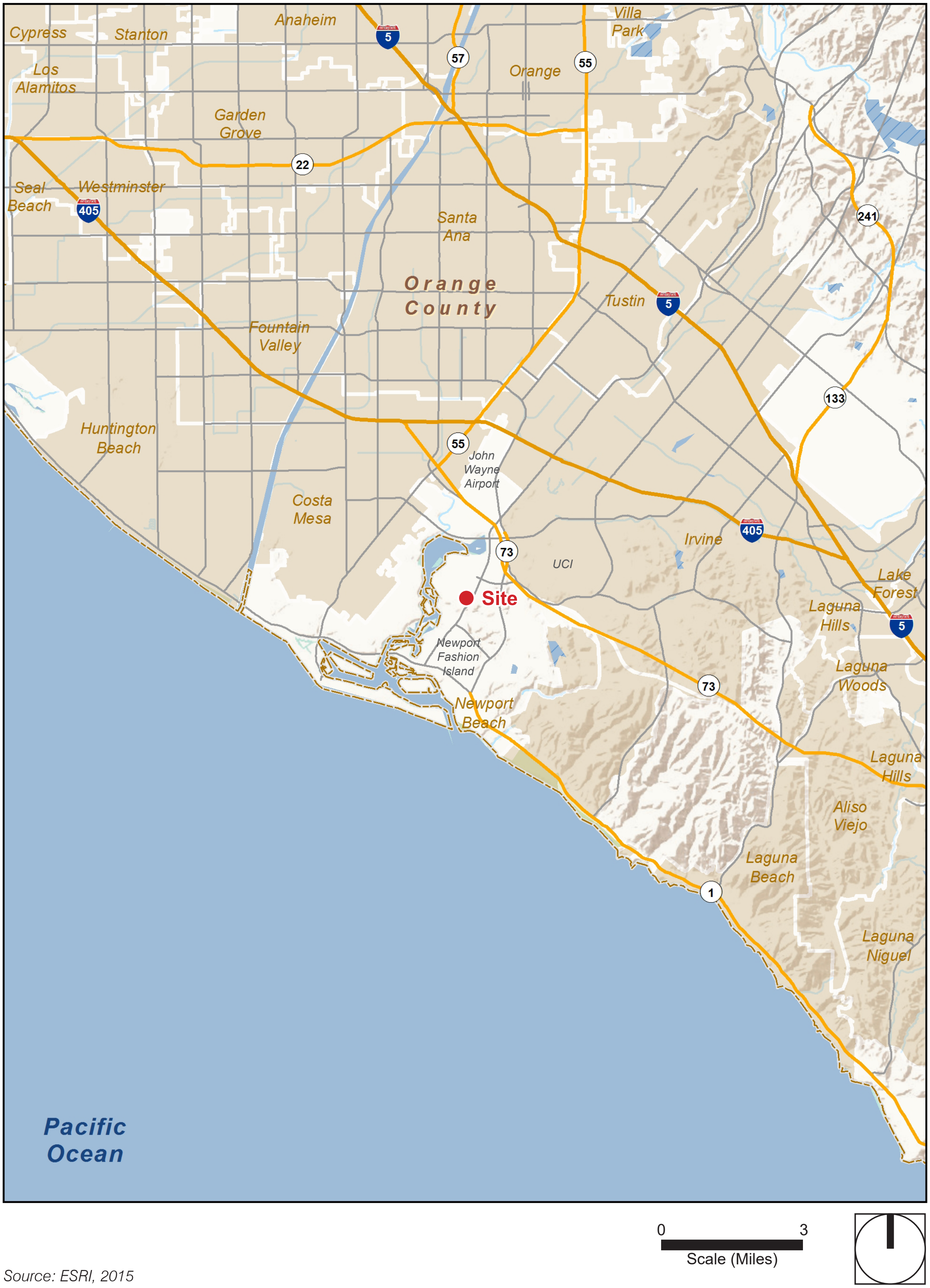
3.3.1 Proposed Land Use

The proposed project consists of replacement and reconfiguration of the existing natural-turf field and rubber track with synthetic-turf field and track and construction of 1,000-seat capacity bleachers (700 home side and 300 visitor side), a press-box, public address (PA) system, and nighttime lighting. The proposed project would include an approximately 3,000-square-foot building with two ticket booths, two restroom areas, a main concession area, and storage. Creation of the reconfigured sports field would disturb approximately 6 acres of the approximately 37-acre campus. The portion of the CdM campus to be disturbed by the proposed project is shown in Figure 3-3, *Aerial Photograph*. Other minor physical changes identified for other parts of the campus as plans are completed would include signage, fencing, pathways, and placement of gates, etc. The proposed site plan is shown in Figure 3-4, *Proposed Site Plan*.

Demolition and Clearance

Several existing field structures, such as goal posts, score board, and storage structures, would be demolished and removed; all vegetation, including 30 trees along Vista del Oro and Eastbluff Drive, would be removed and cleared; and the area would be graded as part of the project.

Figure 3-1 - Regional Location
3. Project Description



Source: ESRI, 2015

3. Project Description

This page intentionally left blank.

Figure 3-2 - Local Vicinity
3. Project Description

Source: ESRI, 2016

This page intentionally left blank.

Figure 3-3 - Aerial Photograph

School Boundary

Sports Field Boundary

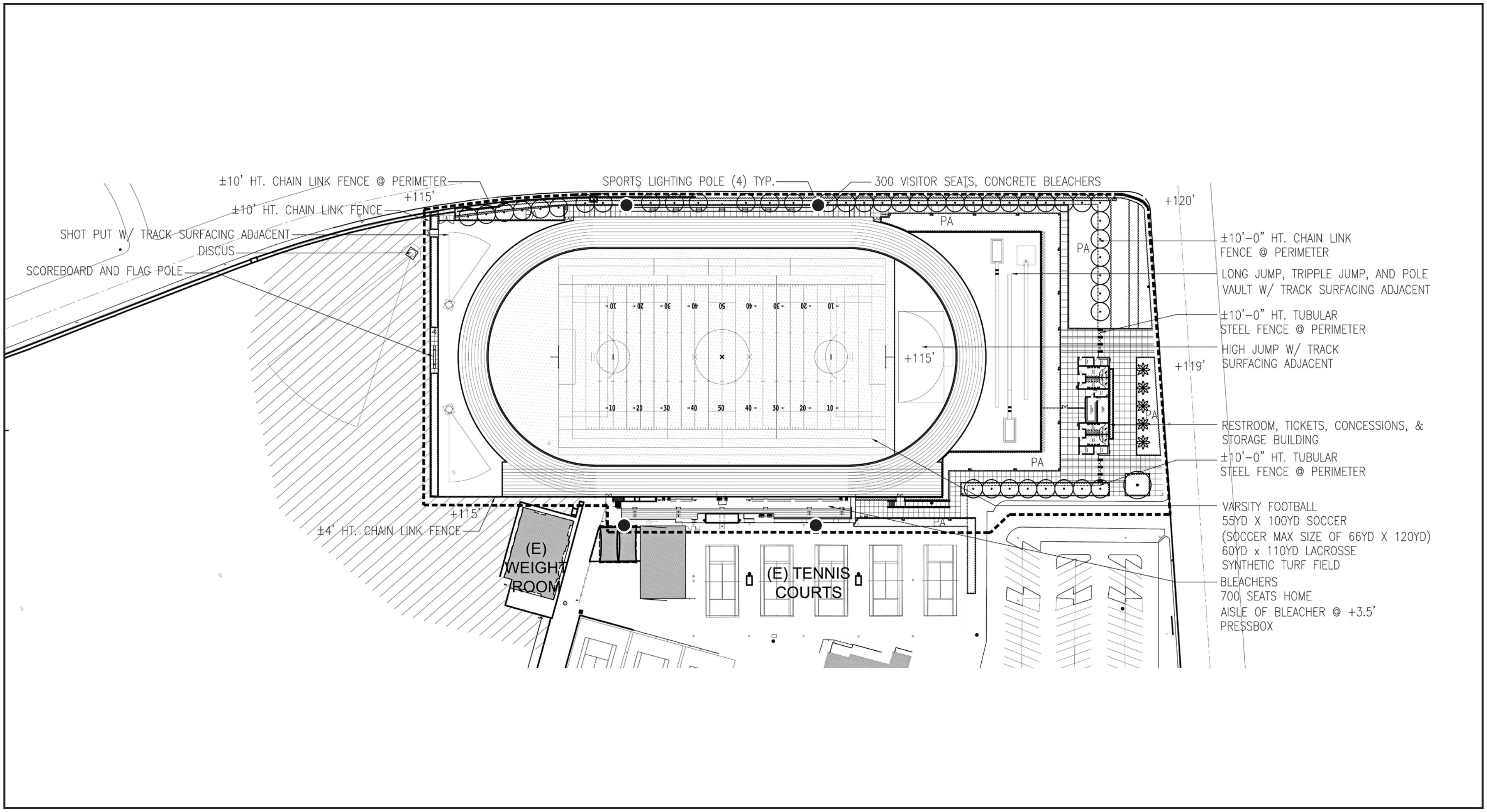
0 300
Scale (Feet)

Source: Google Earth Pro, 2015

This page intentionally left blank.

Figure 3-4 - Proposed Site Plan

3. Project Description



● Sports Lighting Poles (4)

0 175
Scale (Feet)

Base Map Source: LPA, 2016

3. Project Description

This page intentionally left blank.

Sports Field and Bleachers

The 700-seat home bleachers would be on the south side of the field and provide a press box and seven rows of seats (approximately 11 feet tall and 250 feet wide). The 300-seat visitor bleachers would be on the north side of the field and provide two rows of seats (approximately 3 feet tall and 225 feet wide). The bleachers would include noise-reduction features such as vertical paneling to enclose the foot wells. Other field improvements would include ADA ramps for the bleachers, high- and long-jump areas, shot put area, and goal posts. Ten-foot tubular steel fencing and four-foot chain-link fencing would be provided around the perimeter of the field.

Lighting System

Nighttime lighting would be provided by four 80-foot light poles, two on the back side of the home side bleachers and two on the back side of the visitor side bleachers. The locations of the light poles are shown in Figure 3-4, *Proposed Site Plan* and the detailed lighting plan is included in Appendix C to the DEIR. The new lighting improvements would be from the Musco Lighting's Green Generation lighting system supporting 14 metal halide luminaires on each galvanized steel pole for a total of 56 individual luminaires. Each luminaire would be a 1500-watt MZ lamp type with 134,000 design lumens per lamp using 87.58 average KW. The proposed lighting control system would have various lighting modes programmed for different events. The football and soccer modes would average approximately 50 foot-candles on the sports field. The football mode (50 foot-candles) represents the maximum lighting level used at the field.

Public Address System

The proposed project would provide a PA system with speakers installed/mounted on the four light poles and placed slightly above bleach level. The PA system would be partially localized and the speakers would be directional to allow for precise focusing of sound energy into the bleachers.

Policy on Use of School Facilities

Use of the CdM MS/HS Sports Field would be controlled by the Board Policy, 1000 Community Relations, BP 1330 as provided below.

The Board of Education recognizes that district facilities and grounds are a community resource and authorizes their use by community groups for purposes provided for in the Civic Center Act when such use does not interfere with school activities.

All school-related activities shall be given priority in the use of facilities and grounds under the Civic Center Act.

The Superintendent or designee shall maintain procedures and regulations for the use of school facilities and grounds that: (Education Code 38133)

1. Aid, encourage, and assist groups desiring to use school facilities for approved activities.

3. Project Description

2. Preserve order in school buildings and on school grounds and protect school facilities, designating a person to supervise this task, if necessary.

3. Ensure that the use of school facilities or grounds is not inconsistent with their use for school purposes and does not interfere with the regular conduct of school work.

The Board authorizes the use of school facilities or grounds without charge by nonprofit organizations, clubs, or associations organized to promote youth and school activities. In accordance with Education Code 38134(a), these groups include, but are not limited to, Girl Scouts, Boy Scouts, Camp Fire, Inc., parent-teacher associations, and school-community advisory councils. Other groups, including nonprofit groups not organized to promote youth and school activities or for-profit groups that request the use of school facilities under the Civic Center Act, shall be charged at least direct costs.

Groups shall be charged fair rental value when using school facilities or grounds for entertainment or meetings where admission is charged or contributions solicited and net receipts are not to be expended for charitable purposes or for the welfare of the district's students (Education Code 38134).

Table 3-1 describes the artificial turf field use schedule. The Board determined that only public agencies are allowed to use artificial turf fields within the approved times if they are available and no private outside use would be allowed. After practice, the lights would be on at approximately 40 percent of full level for 15 minutes for cleanup. After games, the lights would be at approximately 40 percent of full level for one hour for cleanup, except for cleanup for Homecoming, Battle of the Bell, and Battle of the Bay.

Public address systems are only to be used for games and special events, such as opening day for sports teams, track meets, or graduations. Public address systems will be turned off after the final announcement asking everyone to leave the facility.

In the event that requests are made at least 60 days in advance, the superintendent may allow occasional use outside the hours specified in Table 3-1.

Table 3-1 Use of Artificial Turf Fields

	Monday–Thursday	Friday	Saturday	Sunday
School in Session - Practice	7 AM–8 PM	7 AM–8 PM	9 AM– 8 PM	10 AM–Dusk
School in Session - Games	--	7 AM–10 PM	9 AM–10 PM	
School not in Session - Practice	8 AM–8 PM	8 AM–8 PM	9 AM–8 PM	
School not in Session - Games	--	8 AM–10 PM	9 AM–10 PM	
Light Use - Practice	Until 8 PM	Until 8 PM	Until 8 PM	No Use of Lights
Light Use - Games	--	Until 10 PM	Until 10 PM	No Use of Lights

Source: N-MUSD 2016

Use and Scheduling

The proposed project would accommodate various sporting practices and events that currently take place on campus or at other District campuses.

Table 3-2, *CdM MS/HS Sports Field Preliminary Event Schedule*, lists the various sporting practices and events to be held at the proposed sports field, which include football, soccer, lacrosse, and track practices and events. The sports field would be used primarily by the CdM high school students and occasionally by CdM middle school students. No other District campuses would use the sports field on a regular basis. Events would be held at the new facility based on the expected number of spectators, which is based on available historical attendance data. Events that were expected to exceed the seating capacity would be scheduled at other facilities.

Table 3-2 CdM MS/HS Sports Field Preliminary Event Schedule

Activity/Use	# of Events	Days of Wk	Time		# Spectators		# of Participants	Outdoor Lighting?
			Start	End	Max	Avg		
FALL ACTIVITIES (Aug 15–Nov 15)								
TRACK:								
HS XC/Track PR	5 wkly	Mon–Fri	2pm	4:30pm	25	5	125	No
HS XC/Track PR	5 wkly	Saturday	8am	11am	25	5	50	No
TRACK FIELD:								
Lower Level Football, G&B Soccer, G-Lacrosse PR	5 wkly	Mon–Fri (6th period)	2pm	3pm			50	No
Football PR	5 wkly	Mon–Fri	3pm	6pm	25	5	25–75	Yes
B&G Soccer, B&G Lacrosse PR	5 wkly	Mon–Fri	6pm	8pm	25	5	25–75	Yes
Football PR	1 wkly	Saturday	9am	12pm	25	5	25–75	No
Football Contest - Lower Levels	10	Thurs or Fri	3:15pm	6pm	400	100	80–100	No
Football Contests Varsity	4	Friday	7:00pm	10pm	1000	500	120	Yes
Public Use[1]	TBD							
WINTER ACTIVITIES (Nov 1–Mar 1)								
TRACK:								
HS Track PR	5 wkly	Mon–Fri	2pm	4:30pm	25	5	125	No
HS Track PR	5 wkly	Saturday	8am	11am	25	5	50	No
TRACK FIELD:								
B&G Soccer PR	5 wkly	Mon–Fri	2pm	6pm	25	5	25–75	Yes
B&G Lacrosse PR	5 wkly	Mon–Fri	6pm	8pm	25	5	25–75	Yes
B&G Soccer PR	1 wkly	Saturday	9am	12pm	25	5	25–75	No
Boys' Soccer Contests	20	TBD	TBD	TBD	400	100	60	Rarely[2]
Girls' Soccer Contests	20	TBD	TBD	TBD	400	100	60	Rarely[2]
Public Use[1]	TBD							
SPRING ACTIVITIES (Feb 1–May 30)								
TRACK:								
HS/MS Track PR	5 wkly	Mon–Fri	2pm	5:30pm	25	5	175	No
HS Track PR	1 wkly	Saturday	8am	11am	25	5	50	No
HS Track Meets	5	Thursday	2pm	7pm	400	100	250	No
MS Track Meets	6	Tues or Thurs	2pm	7pm	400	150	150	No

3. Project Description

Table 3-2 CdM MS/HS Sports Field Preliminary Event Schedule

Activity/Use	# of Events	Days of Wk	Time Start	Time End	# Spectators Max	# Spectators Avg	# of Participants	Outdoor Lighting?
TRACK FIELD:								
B&G Lacrosse PR	5 wkly	Mon–Fri	2pm	6pm	25	5	25–75	Yes
Football, B&G Soccer PR	5 wkly	Mon–Fri	6pm	8pm	25	5	25–75	Yes
B&G Lacrosse PR	1 wkly	Saturday	9am	2pm	25	5	25–75	No
Boys' Lacrosse Contests	20	TBD	TBD	TBD	500	200	70	Rarely[2]
Girls' Lacrosse Contests	20	TBD	TBD	TBD	300	100	60	Rarely[2]
Public Use[1]	TBD							

Notes: The anticipated numbers of spectators and participants have been provided by the CdM athletic director.
PR = Practice; TBD = To be determined
1 Regular use of the field by community groups is not anticipated except for occasional use groups involving younger children.
2 Times of soccer and lacrosse contests have not been determined but they generally start between 3 PM to 5 PM, when outdoor lighting is not required. However, in rare occasions a contest could occur past 6PM at which time the outdoor lighting will be used.

The highest spectator attendance is projected for the fall football games. Based on attendance at CdM high school football games for the past three years, the highest recorded attendance at a varsity football game was 4,454 spectators in 2013 for the California Interscholastic Federation game played at Orange Coast College's (OCC) LeBard Stadium. Other varsity football games, including homecoming games, ranged from 231 to 846 spectators. The maximum attendance for other sporting events (e.g., boys and girls lacrosse, soccer, cross country, and track) would range between 300 and 500 spectators, and the average attendance would range between 100 and 200. The proposed sports field is designed to accommodate regular games, including varsity football games, with projected attendance of less than 1,000 spectators and expanded practice use. Games that would exceed 1,000 spectators would continue to be played at Newport Harbor High School's Davidson Field with 5,000-seat capacity, Jim Scott Stadium at Estancia High School with 2,600-seat capacity, and OCC's DeBard Stadium with 7,600-seat capacity.

As shown in Table 3-2, in general, the track and field would be used for school athletic activities from 2 PM to 8 PM during the week and from 9 AM to noon on Saturdays. No specific schedules for soccer and lacrosse events have been provided, but typical events would end by 9 PM during the winter and spring seasons.

Only football games would continue past 8 PM, and they would be scheduled to end by 10 PM. In general, the sports field would be closed when not in use by the District, but it would be available for District-approved public organizations under the Civic Center Act and District policy through a permitting process. Each request to use the sports field would be reviewed and approved by the CdM administration. Therefore, the community use schedule is shown as "TBD" (to be determined) in Table 3-2.

It is anticipated that swimming events and other major school events would not be scheduled at the same time as major, at-capacity events at the proposed sports field. An agreement with the City of Newport Beach and the District authorizes the city to exclusively use the swimming pool from 6 PM to 9 PM on weekdays and 9 AM to 9 PM on school holidays, summer vacation periods, and Saturdays. However, the District must approve a permit for any major events at the swimming pool; therefore, it could coordinate with the city to avoid concurrent large events at the CdM campus. All other crowd-gathering school events could be scheduled and coordinated in advance to avoid conflict.

Although it is anticipated that most varsity football games would likely be scheduled off-site (at Davidson Field, Jim Scott Stadium, or DeBard Stadium), games with smaller anticipated crowds may be scheduled at this new sports field. A Friday night football game is considered the "maximum event" anticipated because it has the greatest potential to reach 1,000 spectators, and it would include band and cheerleader performances, use the PA system, and end by 10 PM. Smaller events would have lesser impacts, so varsity football games are considered the "worst case" condition for environmental impacts and will be the focus of the environmental review.

3.3.2 Project Phasing

Development of the proposed project is preliminarily scheduled to begin in late August 2017 after project approval by the District Board of Education and Division of State Architect and to be completed by late June 2018.

3.4 INTENDED USES OF THE EIR

This DEIR is a project EIR that examines the environmental impacts of the proposed project. This DEIR also addresses various actions by the District and others to adopt and implement the proposed project. It is the intent of this EIR to evaluate the environmental impacts of the proposed project, thereby enabling the District, other responsible agencies, and interested parties to make informed decisions with respect to the requested entitlements. The anticipated approvals required for this project are shown below:

Lead Agency	Action
Newport-Mesa Unified School District	Approve Project Certify EIR Adopt Mitigation Monitoring Program
Responsible Agencies	**Action**
State	
Department of General Services, Division of State Architect	Approval of construction drawings
Regional	
Santa Ana Regional Water Quality Control Board	National Pollutant Discharge Elimination System Permit
South Coast Air Quality Management District	Rule 201: Permit to construct
Local	
Newport Beach Fire Department	Fire and emergency access
City of Newport Beach Public Works	Offsite improvement permits such as drainage, sewer, water, etc.
Southern California Edison	Offsite electrical improvements

This page intentionally left blank.

4. Environmental Setting

4.1 INTRODUCTION

This section provides a "description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, ... from both a local and a regional perspective" (California Code of Regulations § 15125[a]), pursuant to provisions of the California Environmental Quality Act (CEQA) and the CEQA Guidelines. The environmental setting provides the baseline physical conditions from which the lead agency will determine the significance of environmental impacts resulting from the proposed project.

4.2 REGIONAL ENVIRONMENTAL SETTING

4.2.1 Regional Location

The City of Newport Beach is on the southwestern boundary of Orange County in Southern California. The City is bordered by Huntington Beach to the northwest, Costa Mesa to the north, Irvine to the northeast, and unincorporated areas (Crystal Cove State Park) of Orange County to the southeast. Figure 3-1, *Regional Location*, shows the nearby cities and the regional access to the city provided by various freeways. Interstate 405 runs north to south across southern California and intersects State Route 73 (San Joaquin Hills Transportation Corridor) and State Route 55. State Route 55 also runs north to south and terminates in the City of Costa Mesa. State Route 73 runs along the northwestern boundary of the city.

4.2.2 Regional Planning Considerations

4.2.2.1 SCAG REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY

The Southern California Association of Governments (SCAG) is a council of governments representing Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. SCAG is the federally recognized metropolitan planning organization for this region, which encompasses over 38,000 square miles. SCAG is a regional planning agency and a forum for addressing regional issues concerning transportation, the economy, community development, and the environment. SCAG is also the regional clearinghouse for projects requiring environmental documentation under federal and state law. In this role, SCAG reviews proposed development and infrastructure projects to analyze their impacts on regional planning programs.

The 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) was adopted in April 2016 (SCAG 2016). Major themes in the 2016 RTP/SCS include integrating strategies for land use and transportation; striving for sustainability; protecting and preserving existing transportation infrastructure; increase capacity through improved systems managements; providing more transportation choices; leveraging

4. Environmental Setting

technology; responding to demographic and housing market changes; supporting commerce, economic growth and opportunity; promoting the links between public health, environmental protection and economic opportunity; and incorporating the principles of social equity and environmental justice into the plan.

The SCS outlines a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce GHG emissions from transportation (excluding goods movement). The SCS is meant to provide growth strategies that will achieve the regional GHG emissions reduction targets identified by the California Air Resources Board. The SCS does not require that local general plans, specific plans, or zoning be consistent with the SCS but offers incentives to governments and developers for consistency. The proposed project's consistency with the applicable 2016-2040 RTP/SCS policies is analyzed in detail in Section 5.4, *Greenhouse Gas Emissions*.

4.2.2.2 SOUTH COAST AIR BASIN AIR QUALITY MANAGEMENT PLAN

Newport Beach is in the South Coast Air Basin (SoCAB), which is managed by the South Coast Air Quality Management District (SCAQMD). Pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law and standards are detailed in SCAQMD's air quality management plan. Air pollutants for which ambient air quality standards (AAQS) have been developed are known as criteria air pollutants—ozone (O_3), carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_X), sulfur dioxide, coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead. VOC and NOx are criteria pollutant precursors and go on to form secondary criteria pollutants, such as O_3, through chemical and photochemical reactions in the atmosphere. Air basins are classified as attainment/nonattainment areas for particular pollutants depending on whether they meet the AAQS for that pollutant. Based on the air quality management plan, the SoCAB is designated nonattainment for O_3, $PM_{2.5}$, PM_{10}, and lead (Los Angeles County only) under the California and National AAQS and nonattainment for NO_2 under the California AAQS.

4.2.2.3 GREENHOUSE GAS EMISSIONS REDUCTION LEGISLATION

Current State of California guidance and goals for reductions in greenhouse gas (GHG) emissions are generally embodied in Executive Order S 03 05; Assembly Bill 32, the Global Warming Solutions Act (2008); and Senate Bill 375, the Sustainable Communities and Climate Protection Act.

Executive Order S 03 05, signed June 1, 2005, set the following GHG reduction targets for the State of California:

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

Assembly Bill 32 was passed by the state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions. It follows the emissions reduction targets established in Executive Order S 3 05.

In 2008, Senate Bill 375 was adopted to connect GHG emissions reductions targets 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 by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce vehicle miles traveled and vehicle trips. 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.

4.2.2.4 AIRPORT ENVIRONS LAND USE PLAN FOR JOHN WAYNE AIRPORT

The project site falls within the airport influence area of John Wayne Airport. In 1975, the Airport Land Use Commission (ALUC) of Orange County adopted an Airport Environs Land Use Plan (AELUP, amended April 17, 2008) that included John Wayne Airport; Fullerton Municipal Airport; and the Joint Forces Training Base, Los Alamitos. The AELUP is a land use compatibility plan that is intended to protect the public from adverse effects of aircraft noise, to ensure the people and facilities are not concentrated in areas susceptible to aircraft accidents, and to ensure that no structures or activities adversely affect navigable space. The AELUP identifies standards for development in the area based on noise contours, accident potential zones, and building heights. ALUC is authorized under state law to assist local agencies in ensuring compatible land uses in the vicinity of airports. Primary areas of concern for ALUC are noise, safety hazards, and airport operational integrity. ALUC is not an implementing agency in the manner of local governments, nor does it issue permits for a project such as those required by local governments. However, pursuant to California Public Utilities Code, Section 21676, local governments are required to submit all general plan amendments and zone changes that occur in the ALUC planning areas for consistency review by ALUC. If such an amendment or change is deemed inconsistent with the AELUP, a local government may override the ALUC decision by a two-thirds vote of its governing body if it makes specific findings—that the proposed action is consistent with the purposes stated in Section 21670(a)(2) of the Public Utilities Code: "to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards in areas around public airports to the extent that these areas are not already devoted to incompatible uses."

4.3 LOCAL ENVIRONMENTAL SETTING

4.3.1 Location

Corona del Mar Middle and High School campus (CdM campus) is at 2101 Eastbluff Drive (Assessor's Parcel Map Number 440-092-06), City of Newport Beach, Orange County, California. The main area of disturbance encompasses approximately 6 acres around the existing sports field (turf field and rubber track) at the northeast corner of the CdM campus. Minor changes at other areas of the campus may include physical changes to signage, fencing, pathways, placement of gates, etc. The sports field is bounded by Vista del Oro to the north, Eastbluff Drive to the east, student parking and tennis courts to the south, and turf athletic field to the west. The CdM campus is irregularly shaped and bordered by Vista Del Oro to the north, Mar Vista Drive to the west and south, and Eastbluff Drive to the east (Figure 3-2, *Local Vicinity*).

4.3.2 Land Use

The 37-acre CdM campus is currently developed with high school classroom buildings, middle school enclave, administration, a gymnasium, a 350-seat performing arts center, three parking lots totaling 592 stalls, a high school student loading zone, a middle school student loading zone, a varsity baseball field, multipurpose athletic fields, eight tennis courts, hardcourts, swimming pool, outdoor lunch quad, pedestrian walkways, and landscaped planters (see Figure 3-3, *Aerial Photograph*). The existing sports field contains a score board, discus area, and long-jump area. A small storage hut and a storage box are at the northwest corner of the sports field. Thirty mature trees are planted along and near Vista Del Oro and Eastbluff Drive. There are no permanent bleachers on the sports field but 664-seat portable bleachers are available.

The total 2015–16 school year enrollment at CdM campus was 2,557 students—828 in the 7th and 8th grade middle school, and 1,729 in the 9th through 12th grade high school. Many of the 111 certified staff (i.e., teachers, administrators, and pupil services) were part-time employees, so the full-time-equivalent staff was 50 staff (CDE 2016). Additionally, there were approximately 20 volunteers.

Parking and Access

Main vehicular access to the high school student loading zone, sports field, tennis courts, aquatic center, and sports parking lot is provided from Eastbluff Drive. Access to the faculty/visitor parking lot, middle school loading zone, and high school senior parking lot is provided via Mar Vista Drive. The CdM campus provides three parking lots totaling 592 spaces (573 regular spaces and 19 ADA spaces), as listed below:

- **Lot 1 (232 spaces).** A student/staff parking lot adjacent to Eastbluff Drive, accessed via two driveways on Eastbluff Drive.
- **Lot 2 (140 spaces).** A faculty/visitor parking lot at the northwest corner of Eastbluff Drive and Mar Vista Drive, accessed from Mar Vista Drive near Domingo Drive.
- **Lot 3 (220 spaces).** The west lot behind the middle school enclave, accessed from two driveways on Mar Vista Drive.

Existing Use and Schedule

Competitive sporting events (e.g., football, soccer, lacrosse, and track and field) for CdM HS are played at Davidson Field at Newport Harbor High School in Newport Beach, Jim Scott Stadium at Estancia High School in Costa Mesa, and LeBard Stadium at Orange Coast College in Costa Mesa. Students currently travel to Estancia High School for football practices, boys' lacrosse practices, and girls' soccer practices and to Eastbluff Elementary School for girls' lacrosse practices. Only boys' soccer practices are being held at CdM campus.

Various authorized outside group use CdM campus facilities on weekdays and weekends throughout the year. Regularly occurring activities include: CalCoast Track Club uses the track and field, generally between 4 and 7 PM (average of 50 attendees); Volleyball Enterprises uses the gymnasiums, generally between 6:30 and 9:00

PM (50 to 250 attendees); and various groups use the swimming pool until 8 PM (average of 50 attendees). The baseball fields are also used for Little League on weekends and fall baseball academy from 3:30 to 5:30 PM. The existing turf field and synthetic track is also open to community uses, where residents are allowed outside of normal school hours for walking, running, and various recreational purposes without prior authorization from the District.

Surrounding Uses

Off-Campus Land Uses

The CdM campus is in a residential community. Immediately across the sports field to the north are one- and two-story attached single-unit residences in the Plaza Homeowners Community Association (the Plaza). Across Eastbluff Drive to the east are one- and two-story detached single-unit residences in the Eastbluff Homeowners Community Association (the Eastbluff). One- and two-story attached single-unit residences in the Bluffs Homeowners Association (the Bluffs) bound the CdM campus to the northwest and southwest. Figure 4-1, *Cross-Section Views*, shows the relative elevations of various parts of the project vicinity. The east–west cross-section view shows that the Eastbluff neighborhood rises above the campus, with views of the sports field and campus from various vantage points. The north–south cross-section shows that the Plaza community is only a few feet above the elevation of the sports field.

Figure 4-2, *Photo Locations*, shows the angles of photos A through E, which are in Figures 4-3 through 4-5, *Community Views*, and show the adjacent roadways and residential uses. Photo A (Figure 4-3) shows that residences along Mar Vista Drive to the west of the CdM campus are at a slightly higher elevation. Photos B and C (Figures 4-3 and 4-4) show residences, landscaping, and sidewalks adjacent to Vista Del Oro without a noticeable elevation difference from the sports field. Eastbluff Drive and adjacent residences are at a higher elevation, as shown in Photo D (Figure 4-4). Our Lady Queen of Angels Catholic Church (OLQA) and associated K–8 school are located south across Mar Vista Drive. Apartment units are behind OLQA, and Big Canyon Park is behind the apartment units. Photo E in Figure 4-5 shows OLQA and adjacent Mar Vista Drive and Domingo Drive.

The Park Newport Apartments are south of Big Canyon Park. Upper Newport Bay is approximately 1,275 feet from the CdM campus boundary and approximately 1,875 feet from the project site. Other uses in the area include Eastbluff Elementary School, Eastbluff Village Center with retail and office uses, Newport Beach Tennis Club near Eastbluff Drive and Vista Del Sol to the north, and residential units beyond these. Residential units are also east across Jamboree Road, including the private Big Canyon Country Club south of Ford Road/Eastbluff Drive. John Wayne Airport is approximately two miles to the north.

On-Campus Uses

The sports field is at the northeast corner of the CdM campus and is bordered by student parking, tennis courts, and a weight room building to the south and a turf multipurpose athletic field to the west.

4.3.3 Climate and Air Quality

The project site is approximately 1.5 miles inland from the Orange County coast in the western portion of the SoCAB. The climate in the SoCAB is mild and tempered by cool ocean breezes, particularly in Newport Beach. Temperatures are normally mild (62° to 72°F), with rare extremes above 100°F or below freezing (32°F). Precipitation is typically 9 to 15 inches annually in the SoCAB. The climate of Orange County is typified by warm temperatures and light winds. The average monthly high temperatures range from about 52°F in the coastal areas in January to 72°F in the inland areas of the coastal plain in August. In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all annual rains fall between November and 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. Annual average humidity is 70 percent along the coast and 57 percent in the eastern portions of the SoCAB.

However, the year 2013 marked the driest year in recorded state history and led Governor Brown to proclaim a drought state of emergency throughout California. The recent drought has led to extended months of high temperatures with little to no precipitation throughout the SoCAB, including the City of Newport Beach.

The SoCAB is designated nonattainment for O_3, $PM_{2.5}$, PM_{10}, and lead (Los Angeles County only) under the California and National AAQS and nonattainment for NO_2 under the California AAQS. An air quality analysis was performed for the project, and the results are discussed in Section 5.2, *Air Quality*. Additionally, project-related impacts from GHG emissions are discussed in Section 5.4, *Greenhouse Gas Emissions*.

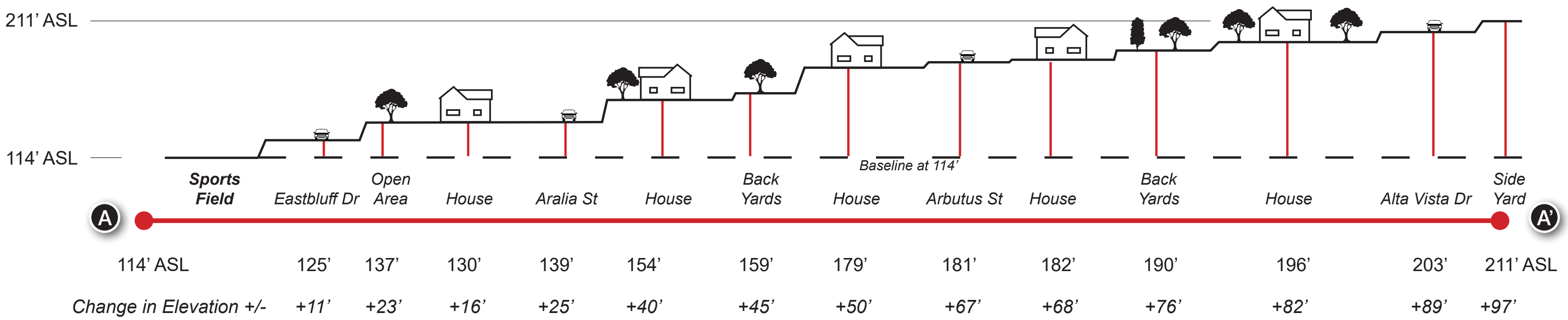
4.3.4 Hydrology

The project site is in the Newport Bay Watershed, which spans 154 square miles in central and southern Orange County. The Newport Bay Watershed is defined by the foothills of the Santa Ana Mountains to the east (Loma Ridge) and the San Joaquin Hills to the west and southwest. The watershed is divided into four subwatersheds—Peters Canyon Wash, Upper San Diego Creek, Lower San Diego Creek, and Newport Bay. Nine cities are partly or fully within the watershed—Costa Mesa, Irvine, Lake Forest, Laguna Hills, Laguna Woods, Newport Beach, Orange, Santa Ana, and Tustin—as well as several unincorporated areas of Orange County. Water quality in the Newport Bay Watershed is currently listed by the U.S. Environmental Protection Agency as impaired by various pollutants, including pesticides, copper and other metals, pathogens, sediment toxicity, and selenium (USEPA 2015).

Refer to Section 5.5, *Hydrology and Water Quality*, for additional information regarding hydrological conditions and an analysis of project impacts on hydrology and water quality.

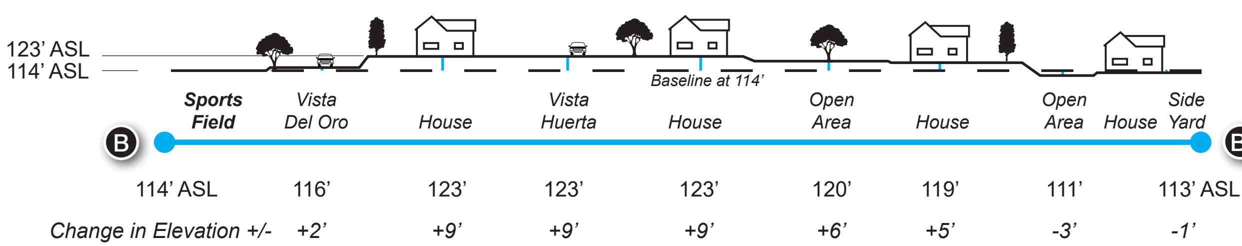
Figure 4-1 - Cross-Section Views

4. Environmental Setting



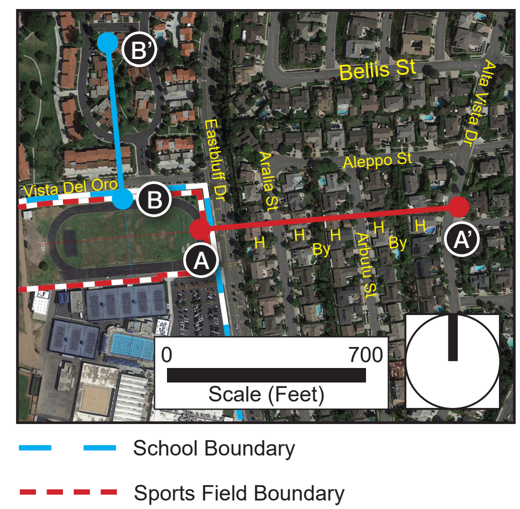
East-West Cross-Section

992' Cross-Section Length



North-South Cross-Section

667' Cross-Section Length



Note: House and tree heights are approximate and for illustrative purposes only.
ASL: Above Sea Level

Base Map Source: Google Earth Pro, 2015

4. Environmental Setting

This page intentionally left blank.

Figure 4-2 - Photo Locations

Base Map Source: USGS, FAO, NPS, NRCAN, 2016

4. Environmental Setting

This page intentionally left blank.

Figure 4-3 - Community Views A and B

4. Environmental Setting

Photo A. Residences along Mar Vista Drive.

Photo B. Residences along Vista Del Oro.
See Figure 4-2, Photo Locations, for key map.

This page intentionally left blank.

Figure 4-4 - Community Views C and D

4. Environmental Setting

Photo C. Residences along Vista Del Oro.

Photo D. Residences along Eastbluff Drive.
See Figure 4-2, Photo Locations, for key map.

4. Environmental Setting

This page intentionally left blank.

Figure 4-5 - Community View E

Photo E. Our Lady Queen of Angels.

See Figure 4-2, Photo Locations, for key map.

4. Environmental Setting

This page intentionally left blank.

4.3.5 Noise

Community noise levels are measured in terms of the "A-weighted decibel" (dBA). A-weighting is a frequency correction that correlates overall sound pressure levels to the frequency response of the human ear. The noise rating scale used in California for land use compatibility assessment is the Community Noise Equivalent Level (CNEL). The CNEL scale represents a time-weighted, 24-hour average noise level based on the A-weighted decibel. Noise levels in the project area are influenced primarily by motor vehicle traffic in and around the Newport Center area—including along Jamboree Road, MacArthur Boulevard, San Joaquin Hills Road, San Clemente Drive, and Santa Barbara Drive—which is a steady source of ambient noise. Minimal noise from operational equipment (e.g., HVAC system) at the county museum and nearby office buildings also adds to the noise levels in the project area. Takeoffs and landings at John Wayne Airport contribute to intermittent aircraft noise in the project area.

Refer to Section 5.6, *Noise*, for additional information concerning the noise environment and an analysis of project-related noise impacts.

4.3.6 Scenic Features

Pacific Coast Highway is an "eligible" state scenic highway, not "officially designated," and it is approximately 1.65 miles to the southwest (Caltrans 2016). There are a number of public view points and scenic view roads near the CdM campus.

Refer to Section 5.1, *Aesthetics*, for additional information concerning the visual environment and an analysis of project-related aesthetic impacts.

4.3.7 Public Services and Utilities

The project site is located in a highly urbanized area of the city with existing public services and utilities available to the site. Local utilities and service systems that serve the existing CdM campus are available to serve the proposed project.

Fire protection services are provided by the Newport Beach Fire Department. Law enforcement services are provided by the Newport Beach Police Department at 870 Santa Barbara Drive, approximately 0.6 mile north of the site.

Domestic and reclaimed water service and wastewater service for the project site are provided by the Newport Beach Municipal Operations Department. Wastewater is treated by the Orange County Sanitation District. Newport Beach is under contract with CR&R Environmental Services and Franchised Haulers for solid waste hauling and OC Waste & Recycling for disposal. Electricity and natural gas services are provided by Southern California Edison and Southern California Gas Company, respectively.

4.3.8 Transportation and Traffic

The existing local roadway network in the project area includes Vista del Oro, Eastbluff Drive, Pacific Coast Highway, MacArthur Boulevard, Jamboree Road, San Joaquin Hills Road, University Drive, Ford Road, Bonita Canyon Drive, Bison Avenue, Bristol Street, Santa Cruz Drive, and Santa Rosa Drive. The regional transportation system in the vicinity of the project site includes SR-73, SR-55, and I-405. Orange County Transit Authority bus routes are provided at the corner of Eastbluff Drive and Bixia Street/Vista del Sol.. Additionally, the John Wayne Airport is approximately two miles north of the project site.

4.3.9 General Plan and Zoning

The project site is zoned "PF" Public Facilities and designated Public Facilities by the city's General Plan.

4.4 ASSUMPTIONS REGARDING CUMULATIVE IMPACTS

Section 15130 of the CEQA Guidelines states that cumulative impacts shall be discussed where they are significant. It further states that this discussion shall reflect the level and severity of the impact and the likelihood of occurrence, but not in as great a level of detail as that necessary for the project alone. Section 15355 of the Guidelines defines cumulative impacts to be "...two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Cumulative impacts represent the change caused by the incremental impact of a project when added to other proposed or committed projects in the vicinity.

The CEQA Guidelines (Section 15130 [b][1]) state that the information utilized in an analysis of cumulative impacts should come from one of two sources:

A. A list of past, present and probable future projects producing related cumulative impacts, including, if necessary, those projects outside the control of the agency.

B. A summary of projections contained in an adopted General Plan or related planning document designed to evaluate regional or area-wide conditions.

The cumulative impact analyses in Chapter 5, *Environmental Analysis*, of this DEIR primarily use Method A. The cumulative projects are listed and numbered in Table 4-1 and mapped on Figure 4-6, *Cumulative Projects Location Map*.

Table 4-1 Cumulative Projects

#	Project	Land Use	Quantity	Unit
1	ENC Preschool (PA2015-079)	Preschool	7309	TSF
2	150 Newport Center (PA2014-213)	Proposed High-Rise Condo	49	DU
3	Balboa Marina Expansion (PA2012-103) (PA2015-113)	Restaurant Boat Slips	14,252 24	TSF Slips
4	Birch Newport Executive Center (PA2014-121) – Phase 1	Existing Single-Family Residence Proposed Medical Office Complex	2 64	DU TSF
5	Uptown Newport Mixed Use Development (PA2011-134)	Existing Proposed Apartment Proposed Specialty Retail Center Proposed Quality Restaurant	 680 5.5 6 10%	 DU TSF TSF
6	MacArthur at Dolphin- Striker Way (PA2010-135)	Existing Restaurant Proposed Commercial	7.996 12.351	TSF TSF
7	Newport Beach Country Club, Inc. (PA2008-152)	Gold Clubhouse	51.213	TSF
8	Westcliff Medical (PA2013-154)	Existing Commercial\ Existing Medical Office Proposed Medical Office Proposed Specialty Retail Proposed Bank Proposed High Turnover (Sit-down) Restaurant Reduction	39.735 14.375 44.864 19.041 4.5 5.266 10%	TSF TSF TSF TSF TSF TSF
9	Koll Newport Residential	Residential Commercial	260 3.4	DU TSF
10	AERIE Project (PA2005-196)	Existing Apartments Proposed Condominiums	14 8	DU DU
11	Meridian (Santa Barbara) Condominiums Project (PA2004-169)	Condominium Recreational Area Open Space	79 21.3 79.14	DU TSF TSF
12	Mariner's Pointe (PA2010- 14)	Commercial	19.905	TSF
13	San Joaquin Plaza Apartments (PA2012-020)	Apartments	524	DU
14	Koll Center Office Building (PA2007-046)	Office	21.311	TSF
15	Uptown Hotel	Hotel Retail	180 15	DU TSF
16	Plaza Corona del Mar (PA2010-061)	Office Detached Townhomes	1.75 6	TSF DU
17	D.I.S.C. 3501 Jamboree Rd and 301 Bayview Circle (PA2010-062)	Outpatient Surgical Center	38.759	TSF

4.4.1 References

California Department of Education (CDE). 2016 (accessed). DataQuest Reports, Staffing, Teacher and Staff Data – 2014-15. http://data1.cde.ca.gov/dataquest/PaifSearchName.asp?TheYear=2014-15&cTopic=Paif&cLevel=School&cName=30665973031697&cCounty=&cTimeFrame=S.

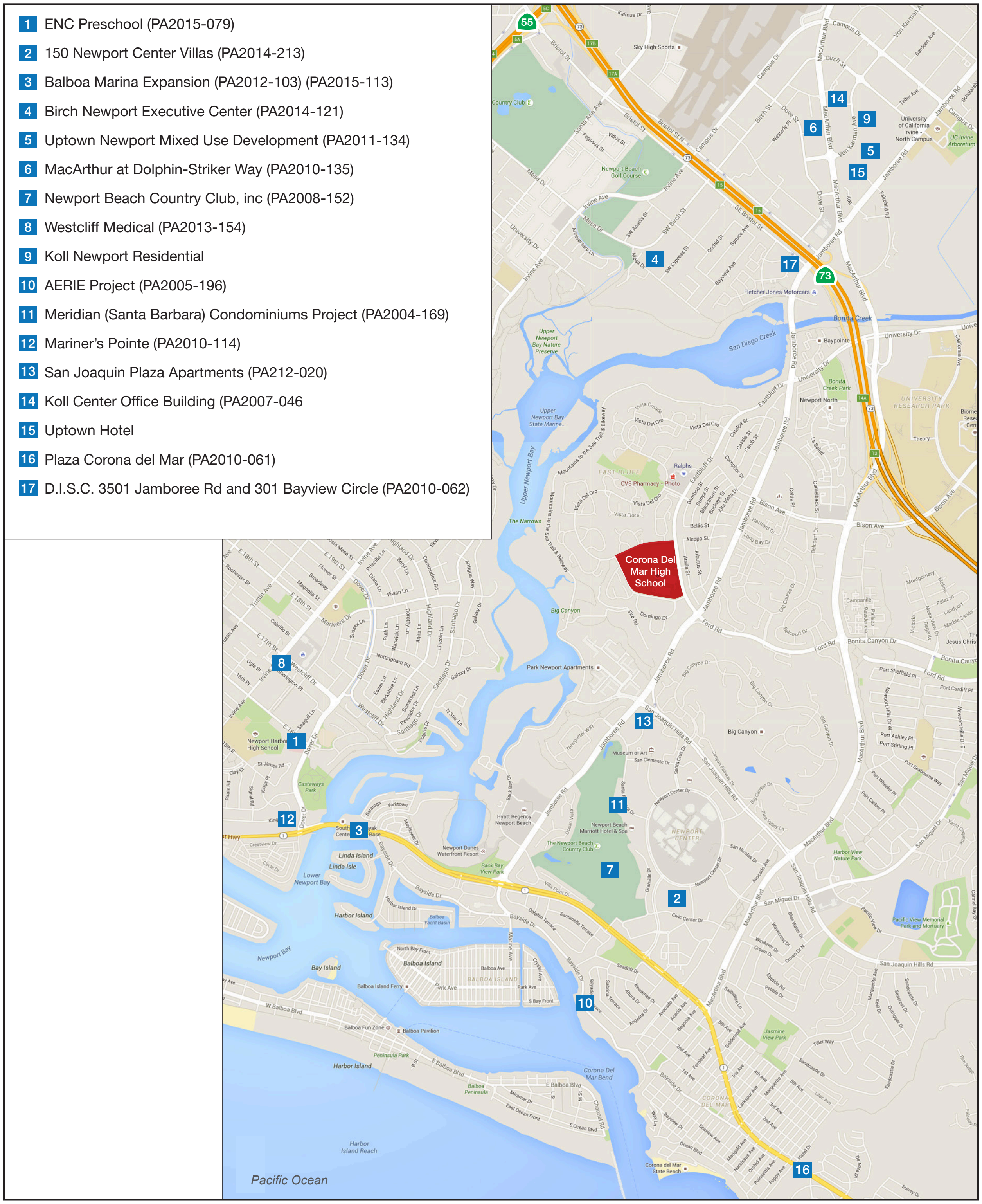
4. Environmental Setting

California Department of Transportation (Caltrans). 2016 (accessed). California Scenic Highway Mapping System. Orange County. http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm.

Figure 4-6 - Cumulative Project Location

4. Environmental Setting

1. ENC Preschool (PA2015-079)
2. 150 Newport Center Villas (PA2014-213)
3. Balboa Marina Expansion (PA2012-103) (PA2015-113)
4. Birch Newport Executive Center (PA2014-121)
5. Uptown Newport Mixed Use Development (PA2011-134)
6. MacArthur at Dolphin-Striker Way (PA2010-135)
7. Newport Beach Country Club, inc (PA2008-152)
8. Westcliff Medical (PA2013-154)
9. Koll Newport Residential
10. AERIE Project (PA2005-196)
11. Meridian (Santa Barbara) Condominiums Project (PA2004-169)
12. Mariner's Pointe (PA2010-114)
13. San Joaquin Plaza Apartments (PA212-020)
14. Koll Center Office Building (PA2007-046
15. Uptown Hotel
16. Plaza Corona del Mar (PA2010-061)
17. D.I.S.C. 3501 Jamboree Rd and 301 Bayview Circle (PA2010-062)



School Boundary

Sports Field Boundary

0 4,000
Scale (Feet)

Source: Google Earth Pro, 2015

4. Environmental Setting

This page intentionally left blank.

5. Environmental Analysis

Chapter 5 examines the environmental setting of the proposed project, analyzes its effects and the significance of its impacts, and recommends mitigation measures to reduce or avoid impacts. This chapter has a separate section for each environmental issue area that was determined to need further study in the EIR. This scope was determined in the initial study and notice of preparation (NOP) process, which were published first time in February 2016 (see Appendix A1) and second time in March 2016 (see Appendix A2), as well as through public and agency comments received during the NOP comment periods first from February 1, 2016 to March 1, 2016 (see Appendix B1), and recirculated from March 25, 2016 to May 23, 2016 (see Appendix B2). Environmental issues and their corresponding sections are:

- 5.1 Aesthetics
- 5.2 Air Quality
- 5.3 Cultural Resources
- 5.4 Greenhouse Gas Emissions
- 5.5 Hydrology and Water Quality
- 5.6 Noise
- 5.7 Public Services
- 5.8 Recreation
- 5.9 Transportation and Traffic
- 5.10 Energy

Sections 5.1 through 5.10 provide a detailed discussion of the environmental setting, impacts associated with the proposed project, and mitigation measures designed to reduce significant impacts where required and when feasible. The residual impacts following the implementation of any mitigation measure are also discussed.

The initial study also determined that certain issues under an environmental topic would not be significantly affected by implementation of the project; these issues are not discussed further in this EIR.

Organization of Environmental Analysis

To assist the reader with comparing information between environmental issues, each section is generally organized under nine major headings:

- Environmental Setting
- Thresholds of Significance
- Environmental Impacts

5. Environmental Analysis

- Cumulative Impacts
- Existing Regulations and Standard Conditions
- Level of Significance Before Mitigation
- Mitigation Measures
- Level of Significance After Mitigation
- References

In addition, Chapter 1, *Executive Summary,* has a table that summarizes all impacts by environmental issue.

Terminology Used in This Draft SEIR

The level of significance is identified for each impact in this DEIR. Although the criteria for determining significance are unique for each topic area, the environmental analysis applies a uniform classification of the impacts based on definitions consistent with CEQA and the CEQA Guidelines:

- **No impact.** The project would not change the environment.
- **Less than significant.** The project would not cause any substantial, adverse change in the environment.
- **Less than significant with mitigation incorporated.** The EIR includes mitigation measures that avoid substantial adverse impacts on the environment.
- **Significant and unavoidable.** The project would cause a substantial adverse effect on the environment, and no feasible mitigation measures are available to reduce the impact to a less than significant level.

5.1 AESTHETICS

This section of the program EIR evaluates the potential for project development to impact aesthetic resources on and near the Corona del Mar Middle School and High School campus. The analysis in this section is based in part on the following lighting modeling:

- *Musco Lighting Project Summary for Corona Del Mar High School Football, 1500W MZ,* Musco Lighting, January 19, 2017.

- *Musco Lighting Project Summary for Corona Del Mar High School Football*, *TLC-LED-1150*, Musco Lighting, January 19, 2017

These lighting project summaries are included as Appendix C of this Draft EIR.

5.1.1 Environmental Setting

5.1.1.1 REGULATORY FRAMEWORK

California State Scenic Highway Program

California Streets and Highways Code Sections 260 through 263 authorize the California State Scenic Highways Program, and set forth criteria and procedures for designation of scenic highways.

Nighttime Sky, CCR Title 24, Outdoor Lighting Standards

The California legislature passed a bill in 2001 requiring the California Energy Commission to adopt energy efficiency standards for outdoor lighting, both public and private. In November 2003 the commission adopted changes to the California Code of Regulations, Title 24, parts 1 and 6, Building Energy Efficiency Standards. These standards became effective on October 1, 2005, and included changes to the requirements for outdoor lighting for residential and nonresidential development. These standards improved the quality of outdoor lighting and helped to reduce the impacts of light pollution, light trespass, and glare. The standards regulate lighting characteristics such as maximum power and brightness, shielding, and sensor controls to turn lighting on and off. Different lighting standards are set for different "lighting zones" (LZ), and the zone for a specific area is based on population figures from the 2000 Census. Areas can be designated LZ1 (dark), LZ2 (rural), or LZ3 (urban). Based on this classification, the project site is designated LZ3.

City of Newport Beach Municipal Code

Provisions from the municipal code help minimize light and glare impacts associated with new development projects in the city. As a state agency, the District is not subject to these codes, but they are presented for informational purposes and to establish guidelines in evaluating aesthetic impacts of the project.

- **Chapter 20.30 (Property Development Standards), Section 20.30.060 (Height Limits and Exceptions).** This section establishes regulations for determining compliance with the maximum allowable height limits established for each zoning district. In addition to building height limits by zoning district, specific standards and boundaries are established in Section 20.30.060 for the Shoreline Height Limitation Zone and High Rise Height Zone. The Shoreline Height Limitation Zone does not include the project site.

- **Chapter 20.30 (Property Development Standards), Section 20.30.070 (Outdoor Lighting).** This section outlines outdoor lighting standards to reduce impacts of glare, light trespass, over-lighting, sky glow, and poorly shielded lighting fixtures.

  A. General Outdoor Lighting Standards

  1. All outdoor lighting fixtures shall be designed, shielded, aimed, located, and maintained to shield adjacent properties and to not produce glare onto adjacent properties or roadways. Parking lot light fixtures and light fixtures on buildings shall be full cut-off fixtures.

- **Chapter 20.30 (Property Development Standards), Section 20.30.100 (Public View Protection).** This section includes regulations to preserve significant visual resources from public view points and corridors, but it does not protect views from private property. View-impact analysis is required where a proposed development has a potential to obstruct a public view from an identified public viewpoint or corridor on General Plan Figure NR 3 (Coastal Views). The analysis shall include recommendations to minimize impacts to public views while allowing the project to proceed and maintain development rights. Landscaping, signage, rooftop equipment, and antennas shall be designed and sited to ensure they minimize impacts to public views.

5.1.1.2 EXISTING CONDITIONS

Visual Character

The new sports field boundary is part of the existing Corona del Mar Middle School and High School (CdM MS/HS) campus and is currently developed with natural turf field and rubber track, score board, field goal posts, and portable bleachers with 664 seats on the south side of the track. The rest of the CdM MS/HS is developed with various one- to three-story structures, walkways, landscaping, athletic facilities, parking lots, and other ancillary improvements typical of public middle- and high-school campus uses. The project site does not contain any unusual or unique visual element that could be considered a scenic resource.

The project site is in a residential community surrounded by the Eastbluff Homeowners Community Association, the Plaza Homeowners Association, and the Bluffs Homeowners Association. In addition to the primarily residential surrounding, Our Lady Queen of Angels Catholic Church and associated K–8 school border the CdM campus to the south across Mar Vista Drive. Beyond the church are apartment units and Big Canyon Park, a 39.16-acre open space area with public viewpoint and hiking trails.

Topography

The project site is generally flat, with topographic elevation ranging from approximately 113 to 115 feet above sea level, because the area to be disturbed is already developed as a natural turf sports field and synthetic rubber track. As shown in Figure 4-1, *Cross-Section Views*, the off-site east-west topography changes substantially, gaining elevation to the east—the house to the east on Aralia Street is approximately 155 feet above sea level, and the property east of Alta Vista Drive is approximately 211 above sea level. The north-south topography is generally similar to the project site, gaining less than 10 feet at the residences north of Vista Huerta. The new sports field would be bounded by existing CdM campus facilities such as tennis courts, swimming pool, surface parking, etc.

Scenic View Points and Corridors

A sensitive viewpoint includes any scenic vista, designated scenic highway, view from residential property, public park, recreational area, and/or important historic location from which the visual resource can be seen.

The California Scenic Highway Program was created in 1963 to protect and enhance the natural scenic beauty of California highways and adjacent corridors. Pacific Coast Highway is an "eligible" state scenic highway approximately 1.65 miles to the southwest, but it is not "officially designated." The Newport Beach General Plan Natural Resources Element also identifies several public viewpoints and coastal view roads throughout Newport Beach. The public viewpoints and coastal roads primarily provide views toward Upper and Lower Newport Bay, Balboa Island, Lido Isle, and the Pacific Ocean. As shown in Figure 5.1-1, *Coastal View Roads*, the project site is outside of the shoreline height limitation zone, but there are a number of coastal view roads and viewpoints in the project area.

Light and Glare

The CdM campus provides nighttime sports lighting for the swimming pool, tennis courts, and the parking lots. The swimming pool lights comprise 8 poles and a total of 16 metal halide medium-beam parabolic flood lighting lamps, and they are a major source of nighttime lighting and glare impacts in the area. Nighttime lighting is provided for the tennis courts but does not represent a major source of spill light or glare. The swimming pool and tennis court lights are mounted on an approximately 30-foot pole. No nighttime sports lighting is at the existing track and field. In addition to the sports lighting, the campus provides security lighting at the parking lots and walkways.

Offsite nighttime light sources include street lights and general urban lights from residential uses. A major lighting source in the project vicinity is the tennis court lights at Park Newport, approximately 0.50 mile to the southwest, and building lights from Fashion Island. Existing nighttime views are discussed further in Impact 5.1-3.

5.1.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

AE-1 Have a substantial adverse effect on a scenic vista.

AE-2 Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

AE-3 Substantially degrade the existing visual character or quality of the site and its surroundings.

AE-4 Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

5.1.3 Environmental Impacts

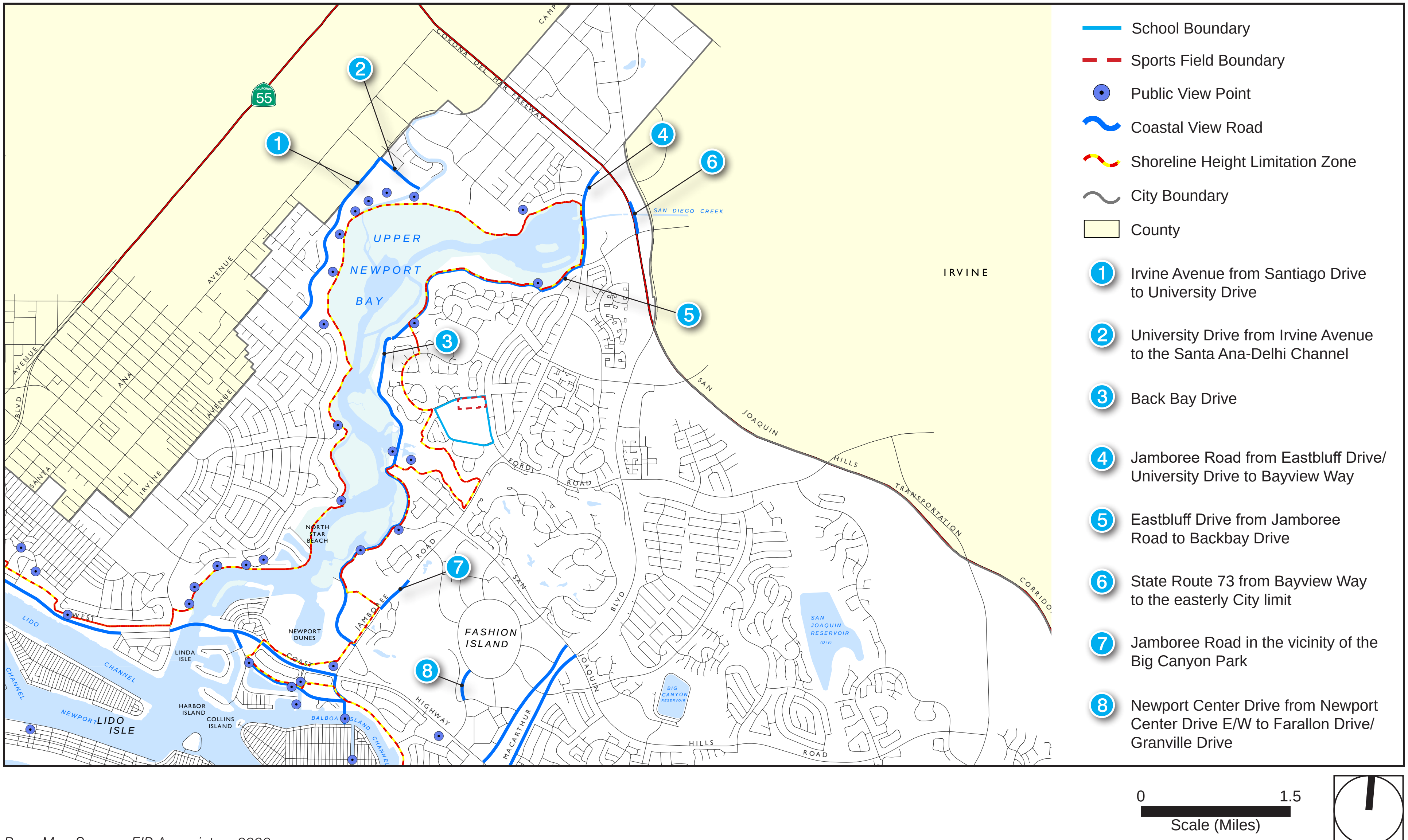
The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.1-1: The proposed project would not adversely affect any scenic vista or alter scenic resources within a state scenic highway. [Thresholds AE-1 and AE-2]

Impact Analysis: Aesthetic impact assessment generally deals with the issue of contrast, or the degree to which elements of the environment differ visually. Aesthetic features vary by environment, which ranges in character from urban to rural to wildlands. Adverse visual effects can include the loss of natural features or areas, the removal of urban features with aesthetic value, or the introduction of contrasting urban features into natural areas or urban settings. Under CEQA, the term "aesthetics" pertains to the perceived visual quality of an area characterized by one or more visual elements such as open space, scenic views, or architecture type. Therefore, the assessment of aesthetic impacts is subjective by nature.

The project site is in a residential community in an urban setting but is also surrounded by numerous scenic viewpoints and natural open space and coastal viewsheds with high visual sensitivity. The proposed project would replace the existing sports field with the newly configured sports field with various upgraded features such as synthetic turf field and rubber track, four 80-foot light poles, 700-seat home side bleachers with press-box on the south side, 300-seat visitor side bleachers on the north side, a 3,000-square-foot restroom/ticket/concession building, long- and triple-jump area on the east end of the track, and shot put areas on the west end of the track. Aesthetic value typically refers to the perception of the natural beauty of an area, as well as to the elements that create or enhance its visual quality. Therefore, the proposed project field with its various improvements would provide enhanced visual quality of a sports field compared to the existing outdated sports field.

Figure 5.1-1 - Coastal View Roads



Base Map Source: EIP Associates, 2006

5. Environmental Analysis
AESTHETICS

This page intentionally left blank.

Sensitive viewpoint includes any scenic vista, designated scenic highways, views from residential property, public parks, recreational areas, and/or important historic locations from which the visual resource can be seen. The City of Newport Beach Municipal Code, Section 20.30.100 (Public View Protection), preserves significant visual resources from public viewpoints and corridors, but does not protect views from private property. View impact analysis is required where a proposed development has a potential to obstruct a public view from an identified public view corridor or viewpoint. The project site is close to city-designated coastal view roads and public viewpoints, identified in Figure 5.1-1. Figure 5.1-2, *Street Views from Coastal View Roads*, depicts the representative view from two nearby coastal view roads and shows that the project site would not be visible from the nearby coastal view roads due to roadway alignment, intervening topography, landscaping, and development. As shown in the view from Eastbluff Drive from Jamboree Road to Back Bay Drive (i.e., segment #5 in Figure 5.1-1, *Coastal View Roads*), the roadway alignment of Eastbluff Drive curves slightly, and the intervening development and vegetation block a direct line of sight to the project site from this coastal view road. Also shown in Figure 5.1-2 is a view from Jamboree Road (i.e., segment #7 in Figure 5.1-1), where the view of the project site is obstructed by intervening Harbor Cove and Park Newport residential neighborhoods and trees. While not shown, the view of the project site from nearby Back Bay Drive is also blocked by the abutting topography and vegetation, which slopes up and creates an elevation difference of more than 70 feet—from approximately 12 feet above sea level at Back Bay Drive to over 80 feet adjacent to the North Bluff Bayview Community and the Bluffs residential neighborhoods. Therefore, the project site would be unrecognizable from these coastal view roadways.

Additionally, visual simulations from three scenic view locations—Pacific Coast Highway, Galaxy View Park, and Interpretative Center—looking toward the project site were conducted (see Figure 5.1-3, *Daytime Visual Simulation Location Map*). Figure 5.1-4, *Visual Simulation from PCH*, compares the existing and simulated views from Pacific Coast Highway. As shown, the 80-foot poles are recognizable as three small dots in the background and do not change or degrade the visual quality from Pacific Coast Highway toward the project site. No other parts of the proposed facilities are visible. Figure 5.1-5, *Visual Simulation from Galaxy View Park*, compares the existing and simulated views from Galaxy View Park. Although all four light poles can be pointed out from this location, the tops of the light poles do not exceed the backdrop skyline, and the poles do not change the general character or the scenic quality.

Figure 5.1-6, *Visual Simulation from Interpretative Center*, compares the existing and simulated views from the Interpretative Center. As shown, no part of the lights poles or other CdM facilities is visible from this location. As demonstrated by the visual simulations shown in Figures 5.1-4 through 5.1-6, the proposed project would not likely change the visual perception or aesthetic value of the scenic resources. No public view roads or viewpoints would be substantially impacted by the proposed project. The project site is not part of a scenic vista, and it does not contain unique visual resources. Implementation of the proposed project would not adversely affect scenic vistas or alter scenic resources.

Impact 5.1-2: The proposed project would alter, but would not degrade the visual appearance of the project site. [Threshold AE-3]

Impact Analysis: Sensitive receptors are generally associated with land uses such as residential, school, church, open space, and recreation. The level of sensitive receptors can be categorized as below:

5. Environmental Analysis
AESTHETICS

- **High sensitivity** exists when the views are rare, unique, or in other ways special to the region or locale. Sensitivity is generally higher for views seen by people who are driving for pleasure; people engaging in recreational activities such as hiking, biking, or camping; and residents. Residential viewers typically have extended viewing periods and are concerned about changes in the views from their homes; therefore, they are generally considered to have high visual sensitivity. Viewers using recreation trails and areas, scenic highways, and scenic overlooks are also usually assessed as having high visual sensitivity.

- **Medium sensitivity** exists when the views are secondary in importance or are similar to others in the region or locale.

- **Low sensitivity** exists when the public can be expected to have little or no concern about changes in the landscape. Sensitivity tends to be lower for views seen by people driving to and from work or as part of their work. Commuters and nonrecreational travelers typically have fleeting views and tend to focus on traffic, not on surrounding scenery; therefore, they are generally considered to have low visual sensitivity.

The proposed project would change the aesthetics of the project site, therefore affecting the viewing experience from surrounding residential neighborhoods, which are considered to have high sensitivity. However, aesthetic impacts are subjective, and alteration does not indicate adverse impact. Adverse visual effects can include the loss of natural features or areas, the removal of urban features with aesthetic value, or the introduction of contrasting urban features into natural areas or urban settings. The new sports field with nighttime sports lighting is compatible with the current use of the site as a high school campus sports field. Therefore, it would not eliminate valuable natural features, remove aesthetically or architecturally valuable urban features, or introduce contrasting urban features into natural areas or urban settings.

Figure 5.1-3 shows four daytime visual simulation locations from the nearby residential neighborhoods. The proposed project would be part of the existing campus setting and would not create contrasting structures or design elements that could contribute substantially to people's experience of the project site. Figure 5.1-7, *Visual Simulation from Residential Neighborhood (View 1)*, shows existing and simulated views from the second-story balcony of a residential unit at the southwest corner of Mar Vista and Vista Del Oro (see Figure 5.1-3 for location map). The existing view shows the baseball netting, bleachers, baseball field, and weight-room building. The background view is Eastbluff Homeowner's Community with elevations ranging from 130 feet to 211 feet above sea level. The proposed project would add four light poles, two field goal posts, and new landscaping in the background. Although the poles would exceed the background skyline view, the background view is not a unique view, and such a change can be considered part of the changing urban built environment, compatible with the existing visual character of the project site with baseball netting and other athletic facilities typical of a high school sports field.

Figure 5.1-2 - Street Views from Coastal View Roads

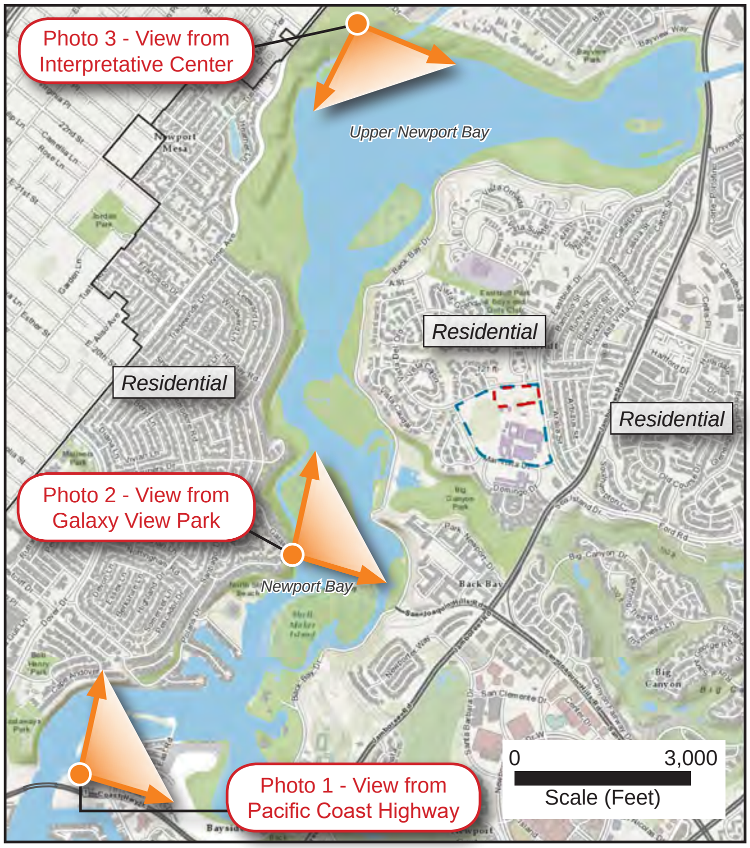
View from the coastal view road segment #5 (Eastbluff Drive from Jamboree Road to Back Bay Drive) looking south toward the project site.

View from the coastal view road segment #7 (Jamboree Road in the vicinity of the Big Canyon Park) looking north toward the project site.

Photo Source: Google Street Map, 2016

This page intentionally left blank.

Figure 5.1-3 - Daytime Visual Simulation Location Map



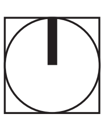
Scenic Views

Community Views

School Boundary

Sports Field Boundary

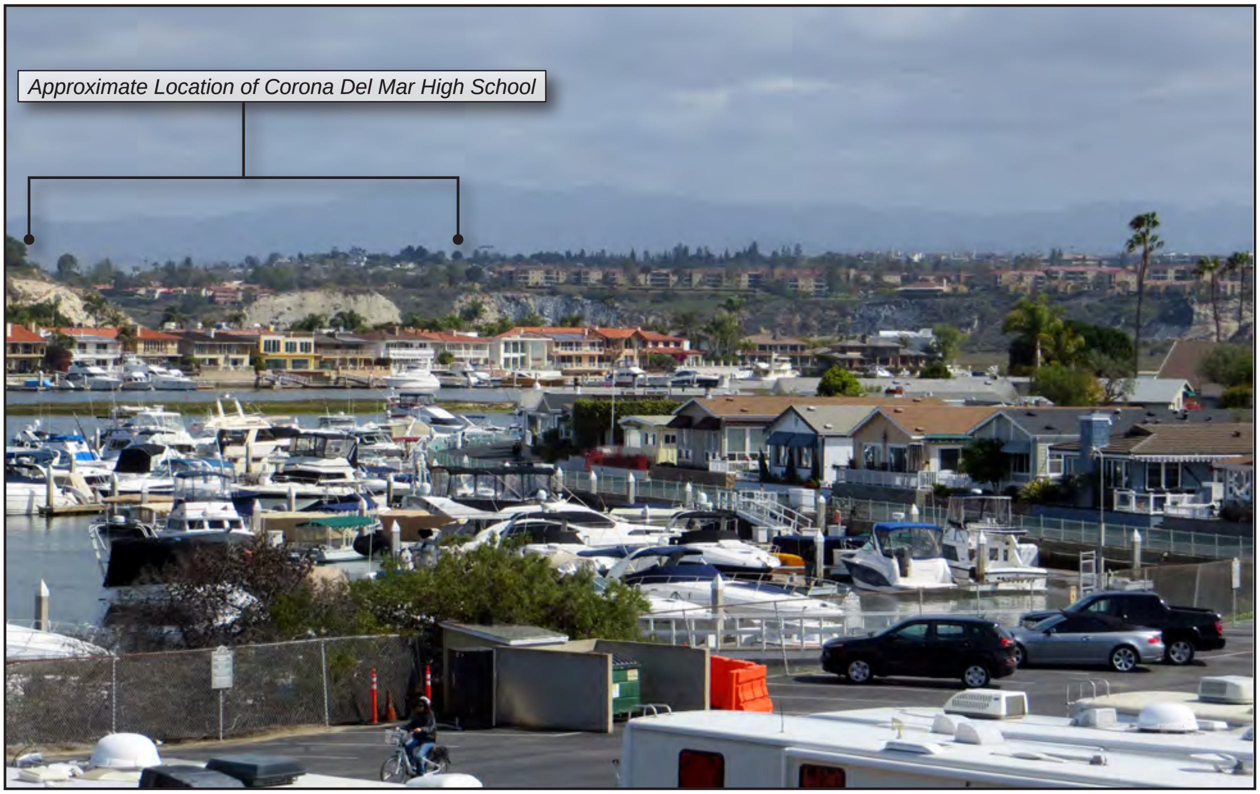
View 1 View Simulation (Day and Night) Locations (4)



Base Map Source: USGS, FAO, NPS, NRCAN, 2016

This page intentionally left blank.

Figure 5.1-4 - Visual Simulation from Pacific Coast Highway



Existing View

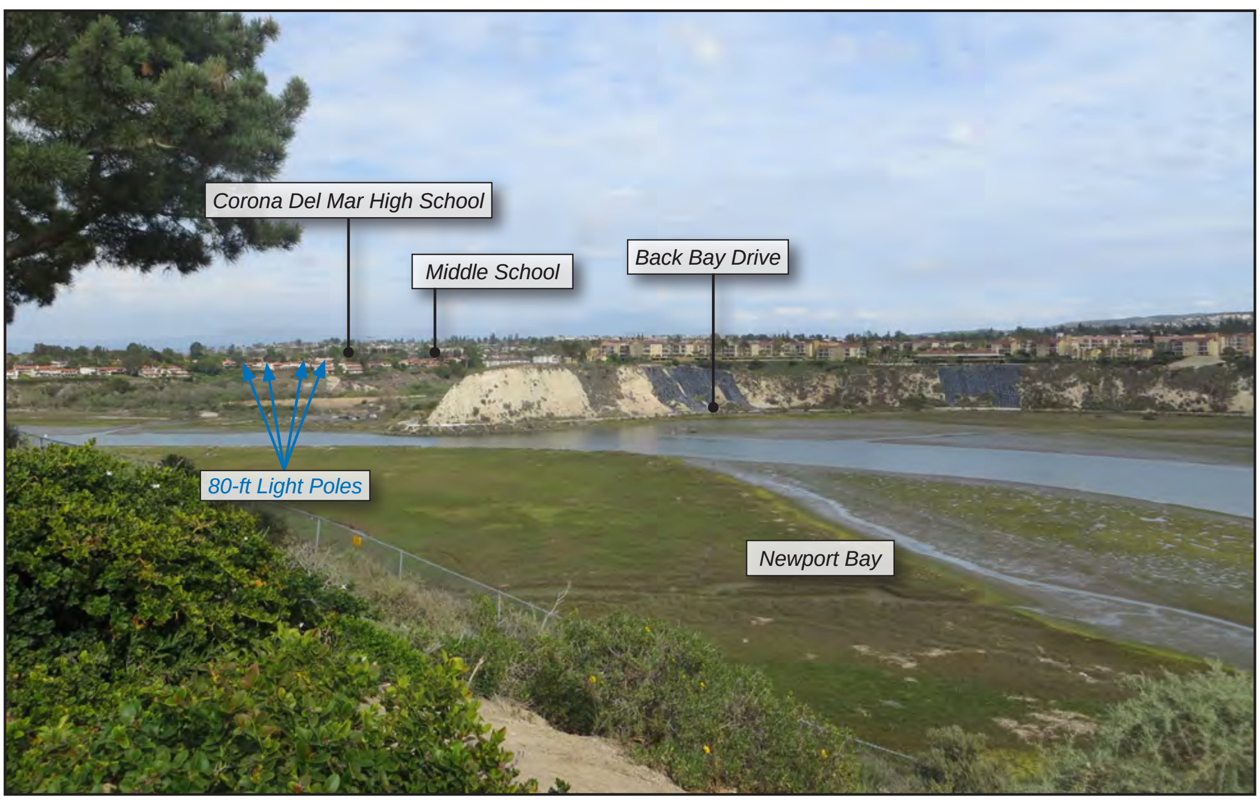
Simulation View

5. Environmental Analysis
AESTHETICS

This page intentionally left blank.

Figure 5.1-5 - Visual Simulation from Galaxy View Park

Existing View



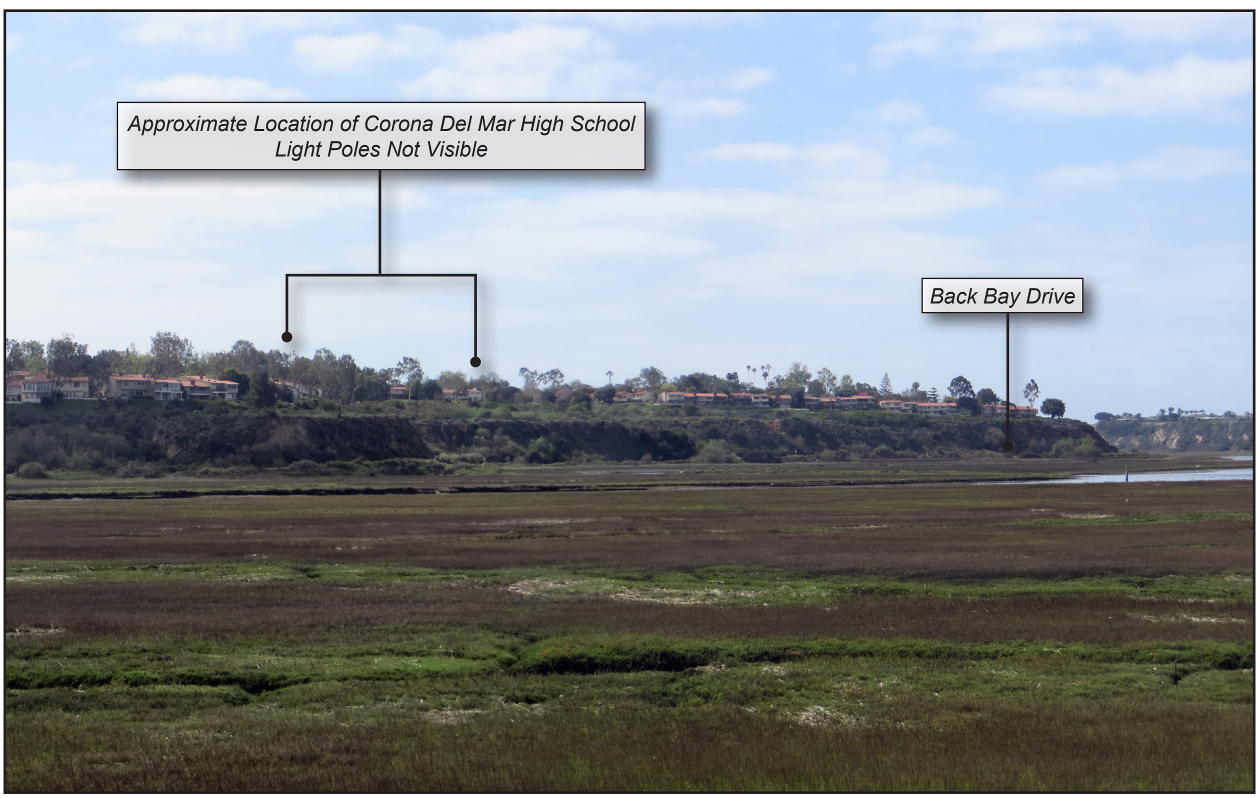
Simulation View

This page intentionally left blank.

Figure 5.1-6 - Visual Simulation from Interpretive Center

5. Environmental Analysis

Existing View



Simulation View

5. Environmental Analysis
AESTHETICS

This page intentionally left blank.

Figure 5.1-7 - Visual Simulation from Residential Neighborhoods (View 1)

Existing View

Simulation View

5. Environmental Analysis
AESTHETICS

This page intentionally left blank.

Figure 5.1-8, *Visual Simulation from Residential Neighborhood (View 2)*, shows the existing view from the second-story window of a residential unit on Vista Del Oro, representing the closest sensitive receptors. The background view shows urban developments in and around Fashion Island. As shown, the nearest pole would be prominently visible, as would other related sports field facilities. The back of the visitor-side concrete bleachers would also be visible, showing approximately 4 feet above the sidewalk. A 12-foot sound wall at the back of the visitor bleachers and 10-foot chain-link perimeter fencing are not included in this simulation to provide views of the field and bleachers. The sound wall is discussed separately as a noise mitigation measure in Section 5.6, *Noise*, of this DEIR. Although implementation of the proposed project would alter the existing appearance from this sensitive receptor, the existing primary view to the south is of the CdM campus and urban development near Fashion Island, and there is no public scenic view or important natural viewsheds to be obstructed by the proposed development. Visibility of new structures from residential neighborhoods is not considered a significant degradation of surrounding visual quality.

Figure 5.1-9*, Visual Simulation from Residential Neighborhoods (View 3)*, and Figure 5.1-10, *Visual Simulation from Residential Neighborhoods (View 4)*, show views from the second story of a residence located east of Eastbluff Drive (i.e., View 3 and View 4 from Figure 5.1-3, *Daytime Visual Simulation Location Map*), where topography progressively slopes up toward the east. It should be noted that, in order to better show the proposed field and bleacher improvements, this view does not include the new 10-foot tubular-steel perimeter fence. As shown, the light poles and the associated athletic facilities would be visible, although some would be shielded by existing and proposed landscaping and vegetation, and the poles exceed the backdrop skyline. However, visibility of proposed facilities and alteration of an existing skyline through erection of four light poles would not necessarily result in significant degradation of aesthetic value. The project site is part of an urban environment with its own visual characteristic as a MS/HS sports field as represented by the existing athletic facilities. The visual experience from the east already includes artificial built-environment features, such as the existing sports field and rooftops of residential properties, and the changes would not obstruct or substantially changes the overall impression of the viewshed. Therefore, impacts would not be considered significant.

In addition to direct changes to the visual character of the project site, the increased number of events at the sports field could result in accumulation of trash on the perimeter of the campus, causing indirect visual impacts to the surrounding streets. However, it should be noted that these events and athletic programs are currently occurring at other District facilities, and the District staff and school administrators are committed and also experienced in making best efforts to clean up and maintain District facilities. Therefore, although there could be slight increase in trash volumes with the proposed project, substantial overall degradation of visual character is not anticipated. The District and school staffs are anticipated to continue to make best effort to keep the area clean before and after each event. Such indirect visual impact would be considered less than significant.

Impact 5.1-3: The proposed project would generate new sources of light and glare. [Threshold AE-4]

Impact Analysis: Nighttime illumination and glare analysis addresses the effects of a project's nighttime lighting upon adjoining uses and areas. Light and glare impacts are determined through a comparison of the existing light sources with the proposed lighting plan or policies. If the project has the potential to generate

5. Environmental Analysis
AESTHETICS

spill light on adjacent sensitive receptors or generate glare to receptors in the vicinity of the site, mitigation measures can be provided to reduce potential impacts, as necessary. The following provides relevant lighting assessment terminologies used in this analysis.

Foot-candle. The unit of measure expressing the quantity of light on a surface. One foot-candle is the illuminance produced by a candle on a surface of one square foot from a distance of one foot. The general benchmarks for light levels are shown in Table 5.1-1.

Table 5.1-1 Light Levels

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.

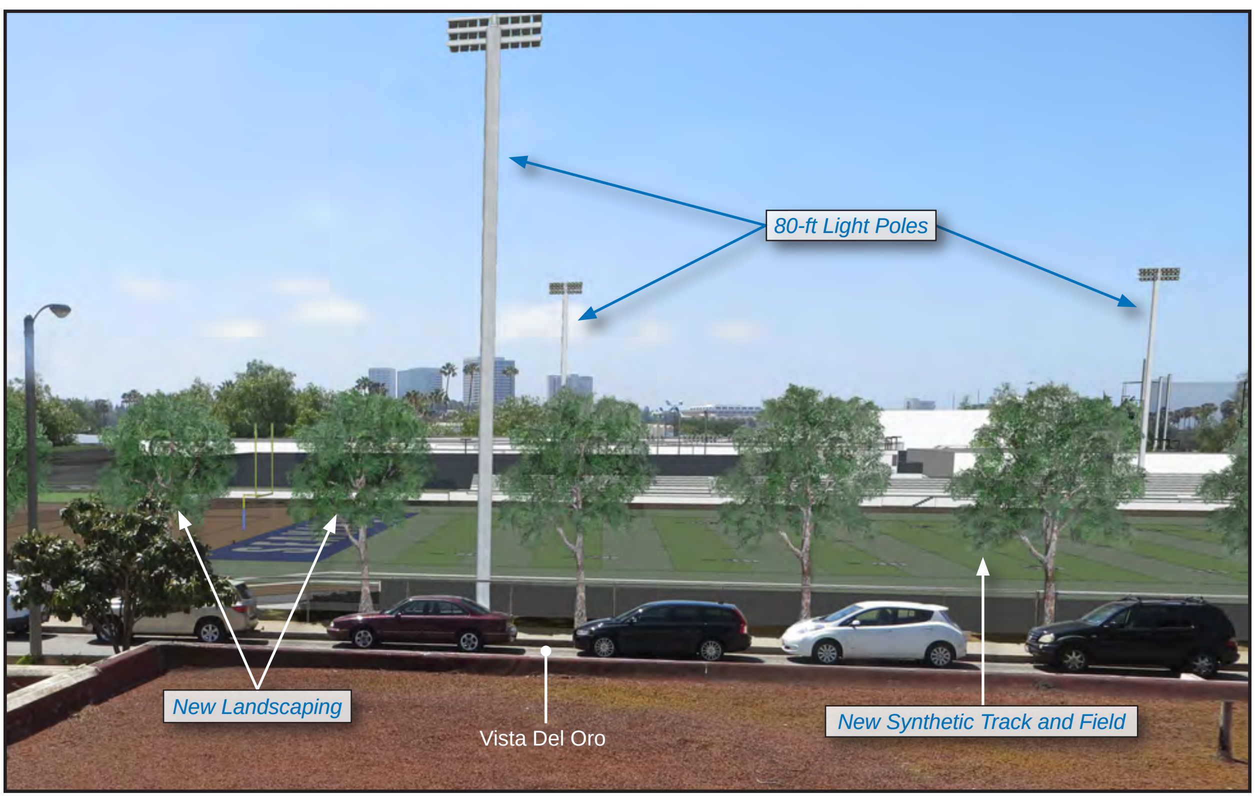
Horizontal foot-candle. The amount of light being received on a horizontal surface such as a roadway or parking lot pavement.

Vertical foot-candle. The amount of light being received on a vertical surface such as a billboard or building façade.

Lumen. A unit of measure for quantifying the amount of light energy emitted by a light source. In other words, foot-candles measure the brightness of the light at the illuminated object, while lumens measure the total amount of light radiated by the light source.

Figure 5.1-8 - Visual Simulation from Residential Neighborhoods (View 2)

Existing View

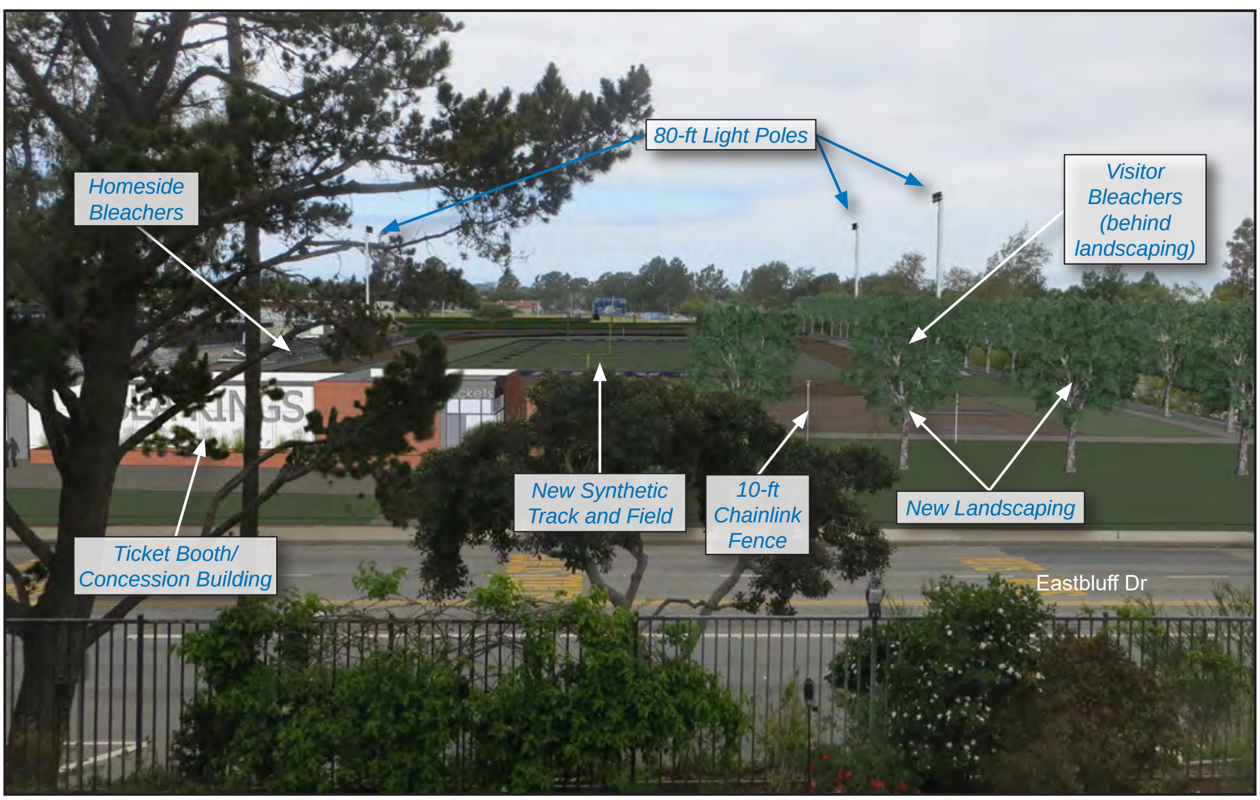


Simulation View

This page intentionally left blank.

Figure 5.1-9 - Visual Simulation from Residential Neighborhoods (View 3)

Existing View



Simulation View

This page intentionally left blank.

Figure 5.1-10 - Visual Simulation from Residential Neighborhoods (View 4)

Existing View

Simulation View

5. Environmental Analysis
AESTHETICS

This page intentionally left blank.

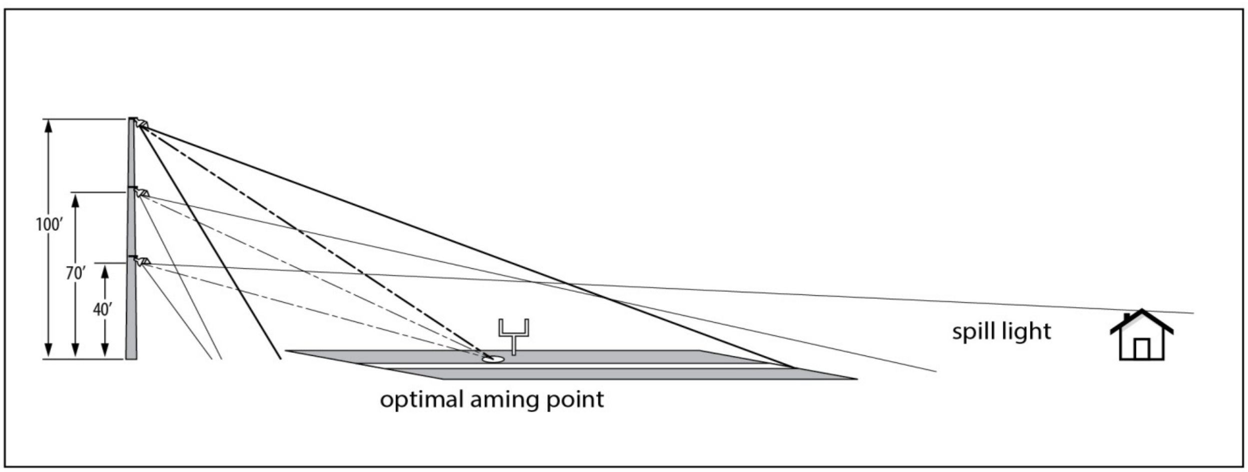
Luminaire ("light fixture"). The complete lighting unit (fixture) consists of a lamp—or lamps and ballast(s)—and the parts that distribute the light (reflector, lens, diffuser), position and protect the lamps, and connect the lamps to the power supply. An important component of luminaires is their shielding:

- ***Fully shielded.*** A luminaire emitting no light above the horizontal plane.
- ***Shielded.*** A luminaire emitting less than 2 percent of its light above the horizontal plane.
- ***Partly shielded.*** A luminaire emitting less than 10 percent of its light above the horizontal plane.
- ***Unshielded.*** A luminaire that may emit light in any direction.

Spill light. Light from a lighting installation that falls outside the boundaries of the property for which it is intended.

Light trespass. Spill light that, because of quantitative, directional, or type of light, causes annoyance, discomfort, or loss in visual performance and visibility. Light trespass is light being cast where it is not wanted or needed, such as light from a streetlight or a floodlight that illuminates someone's bedroom at night, making it difficult to sleep. As a general rule, taller poles allow fixtures to be aimed more directly on the playing surface, which reduces the amount of light spilling into surrounding areas. Proper fixture angles ensure even light distribution across the playing area and reduce spill light. See Illustration AE-1 below, adapted from Musco Lighting (Musco 2015).

Illustration AE-1

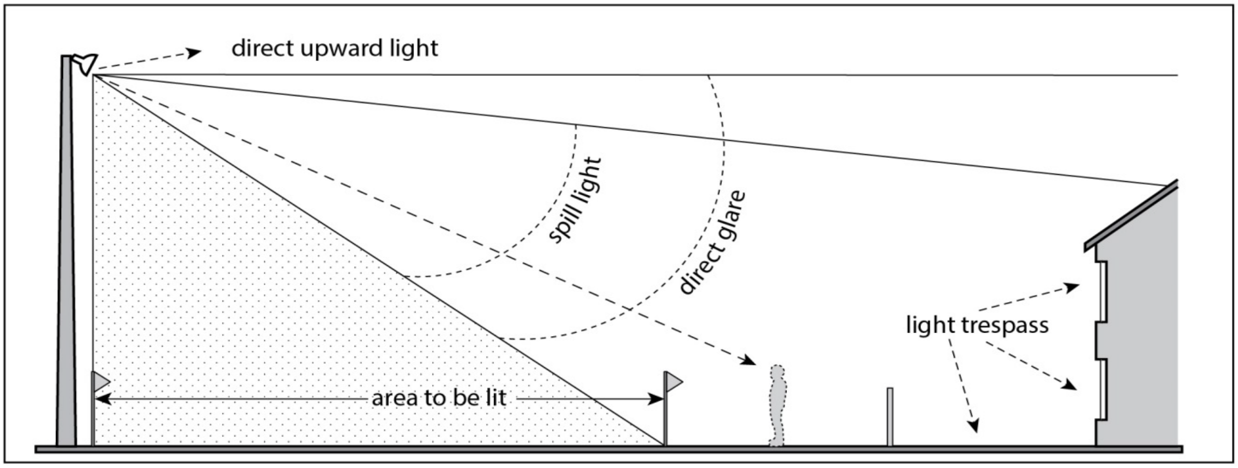


Glare. Light that causes visual discomfort or disability or a loss of visual performance when a bright object appears against a dark background. Glare can be generated by building-exterior materials, surface-paving materials, vehicles traveling or parked on roads and driveways, and stadium lights. Any highly reflective façade material is a concern because buildings can reflect bright sunrays. The concepts of spill light, direct glare, and

5. Environmental Analysis
AESTHETICS

light trespass are illustrated in Illustration AE-2, below, adapted from Institution of Lighting Engineers (ILE 2003).

Illustration AE-2



The District recognizes that light trespass varies according to surrounding environmental characteristics. Areas that are more rural in character are more susceptible to impacts resulting from the installation of new artificial lighting sources, whereas urbanized areas are characterized by a large number of existing artificial lighting sources and therefore less susceptible to adverse effects associated with new artificial lighting sources. Therefore, lighting standards vary according to the amount and intensity of existing light sources in the area. In order to determine appropriate lighting standards that reflect the existing lighting conditions, land uses are categorized into the following lighting zones (IES 2011):

- **LZ1: Low ambient lighting.** Areas where lighting might adversely affect flora and fauna or disturb the character of the area. The vision of human residents and users is adapted to low light levels. Lighting may be used for safety and convenience, but it is not necessarily uniform or continuous. After curfew, most lighting should be extinguished or reduced as activity levels decline.

- **LZ2: Moderate ambient lighting.** Areas of human activity where the vision of human residents and users is adapted to moderate light levels. Lighting may typically be used for safety and convenience, but it is not necessarily uniform or continuous. After curfew, lighting may be extinguished or reduced as activity levels decline.

- **LZ3: Moderately high ambient lighting.** Areas of human activity where the vision of human residents and users is adapted to moderately high light levels. Lighting is generally desired for safety, security, and/or convenience, and it is often uniform and/or continuous. After curfew, lighting may be extinguished or reduced in most areas as activity levels decline.

- **LZ4: High ambient lighting.** Areas of human activity where the vision of human residents and users is adapted to high light levels. Lighting is generally considered necessary for safety, security, and/or convenience, and it is mostly uniform and/or continuous. After curfew, lighting may be extinguished or reduced in some areas as activity levels decline.

The project site is identified as LZ3 based on population figures from the 2000 Census and can be categorized as moderately high ambient lighting (LZ3) under the above IES lighting zone description.

Light Trespass Impact

The proposed 80-foot-tall light poles provide the minimum height required to effectively illuminate the field area with an average maximum of 50 foot-candles (fc). It is not possible to completely eliminate spillover of light and glare onto adjoining properties and roadways, but the proposed pole height allows the best control for focusing the lights to minimize spillover light. Higher mounting heights are generally more effective in controlling spill light, because a more controlled and/or narrower beam may be used, making it easier to confine the light to the design area. Lower mounting heights increase the spill light beyond the property boundaries. Lower mounting heights make bright parts of the floodlights more visible from positions outside the property boundary, which can increase glare.

Figure 5.1-11, *Lighting Levels Plan (Horizontal)*, shows spill light levels from the 56 luminaires on four 80-foot lights poles with an average maximum of 50 fc on horizontal surface. The figure illustrates horizontal spill light levels in foot-candles on a 30- by 30-foot grid. As described earlier, horizontal foot-candles represent the light level received on a horizontal surface such as a sports field, roadway, or parking lot pavement. As shown, the proposed system provides intended lighting levels on the field, but spill light quickly dissipates away from the intended areas. For example, the light levels between the two north side poles (i.e., F1 and F2) range from 7.5 fc to 3.5 fc; in the next 30-feet grid to the north along Vista Del Oro, the light levels range from to 1.1 fc to 0.8 fc; and along the next 30-foot grid that falls on the residential parking garage driveway area, the levels range from a minimum 0.1 fc to a maximum of 0.4 fc. Therefore, at 150 feet from the edge of the football field, the minimum level would be 0.1 fc, and the maximum would be 0.4 fc north of Vista Del Oro, as shown in Figure 5.1-12, *Spill Light at 150 Feet (Horizontal)*. Comparative light levels are shown in Table 5.1-1, *Light Levels*, and levels from 0.1 fc to 0.4 fc would be between the deep twilight (0.1 fc) to twilight (1 fc) and would not result in substantial light nuisance.

Moreover, Table 5.1-2, *Average Maintained Illumination at Pavement by Pedestrian Area Classification*, shows recommended average illuminance for the intersection of continuously lighted urban streets, and the most conservative light level for local streets is 0.8 fc. Therefore, a maximum of 0.4 fc near the residential property boundary, which is far below the 0.8 fc figure, further demonstrates the project would not result in a substantial light trespass impact.

5. Environmental Analysis
AESTHETICS

Table 5.1-2 Average Maintained Illumination at Pavement by Pedestrian Area Classification

Functional Classification	Average Maintained Illumination at Pavement by Pedestrian Area Classification		
	High (fc)	Medium (fc)	Low (fc)
Major/Major	3.4	2.6	1.8
Major/Collector	2.9	2.2	1.5
Major/Local	2.6	2.0	1.3
Collector/Collector	2.4	1.8	1.2
Collector/Local	2.1	1.6	1.0
Local/Local	**1.8**	**1.4**	**0.8**

Source: IES 2011.

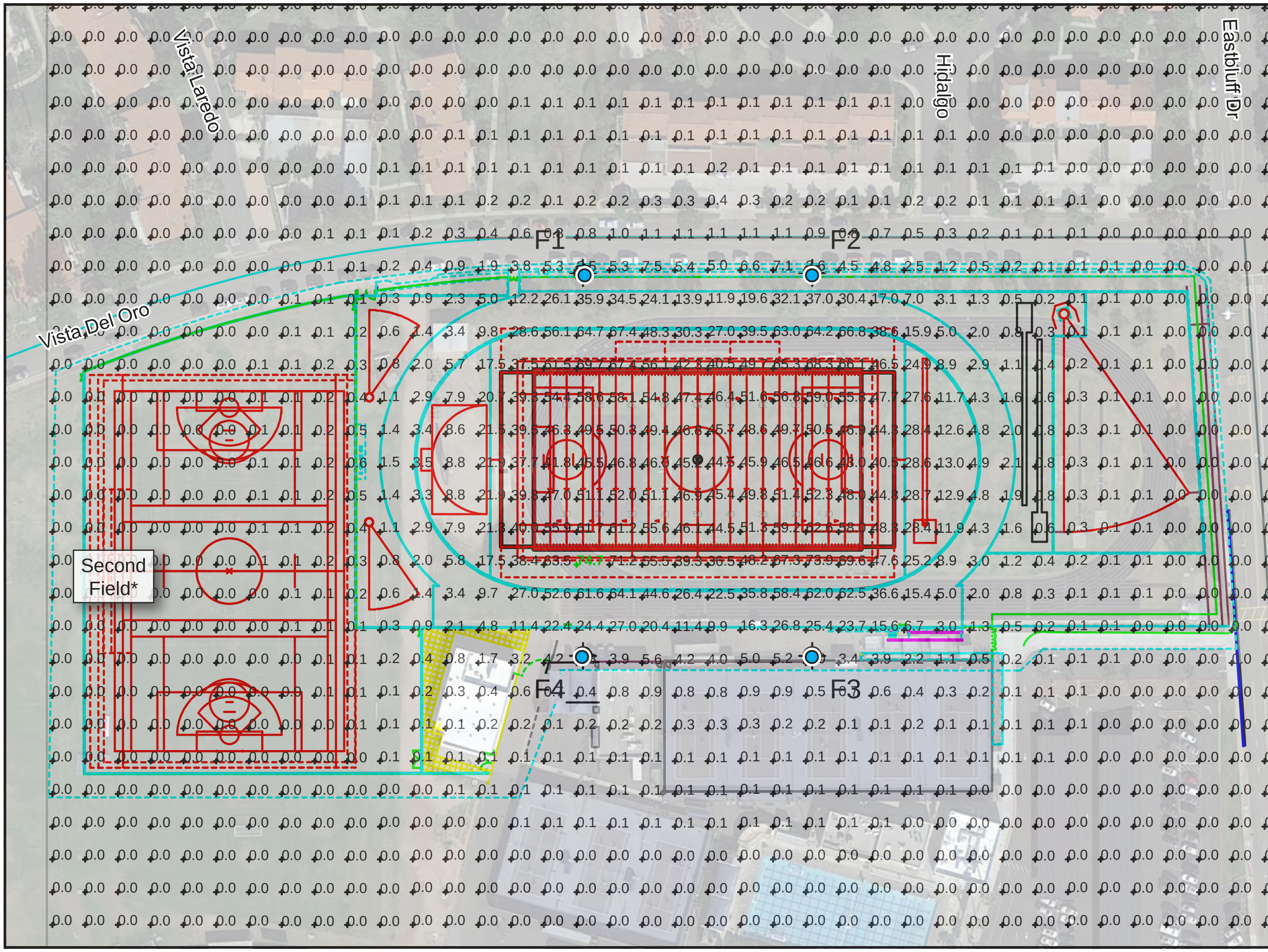
A vertical foot-candle represents light levels received on a vertical surface such as a building façade. Because the City of Newport Beach does not have a significance threshold for spill light impacts, this analysis used conservative vertical light trespass standards, shown in Table 5.1-3, *Light Trespass, Vertical Illumination*. The project site is in LZ3 with moderately high ambient lighting, and light trespass impacts could be considered significant if the vertical illuminance exceeds 0.8 fc. As shown in Figure 5.1-13, *Lighting Levels Plan (Vertical)*, the light levels between the north side poles range from 8.2 fc to 3.6 fc, drop to a range of 1.8 fc to 1.4 fc along Vista Del Oro, and further decrease to a range of 1.0 fc to 0.7 fc on the residential parking garage driveway area. As the light beams are received on the vertical surface of the parking garage located approximately 90 feet from the northern poles, the light levels would be in the 0.7 fc to 0.4 fc range, not exceeding the 0.8 fc vertical threshold level as shown in Table 5.1-3. The light levels received on the residential structure near Vista Laredo to the northwest of the light pole would be 0.5 fc to 0.7 fc, and no significant impact is anticipated.

Table 5.1-3 Light Trespass, Vertical Illuminance

Lighting Zone	Foot Candle
LZ1	0.1 fc
LZ2	0.3 fc
LZ3	0.8 fc
LZ4	1.5 fc

Source: IES 2011.

Figure 5.1-11 - Lighting Levels Plan (Horizontal)



EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	F1-F4	80'	-	80'	1500W MZ	14	14	0
4	TOTALS					56	56	0

GRID SUMMARY

Name:	**Blanket Grid**
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

F1 Light Posts (4)

NOTE: Light levels shown in foot-candles. See Table 5.1-1 for comparative light levels.

*This second field was inadvertently left out during modeling process and is not part of the Proposed Project.

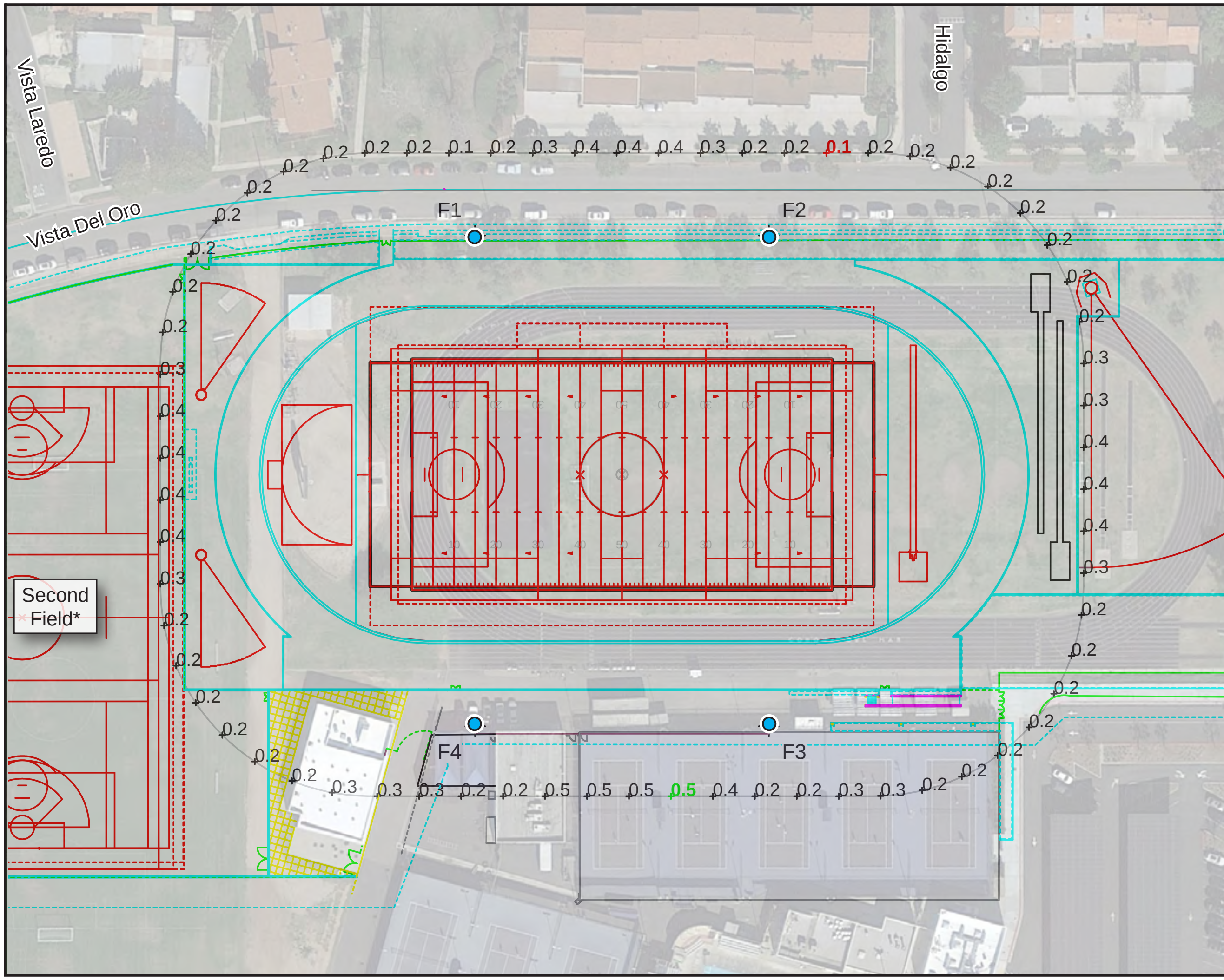
0 200
Scale (Feet)

Base Map Source: Google Earth Pro, 2016; Lighting Data: Musco, 2016

5. Environmental Analysis
AESTHETICS

This page intentionally left blank.

Figure 5.1-12 - Spill Light at 150 Feet (Horizontal)



EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	F1-F4	80'	-	80'	1500W MZ	14	14	0
4	TOTALS					56	56	0

GRID SUMMARY

Name:	**Spill @ 150'**
Spacing:	30.0'
Height:	3.0' above grade

F1 Light Posts (4)

NOTE: Light levels shown in foot-candles. See Table 5.1-1 for comparative light levels.

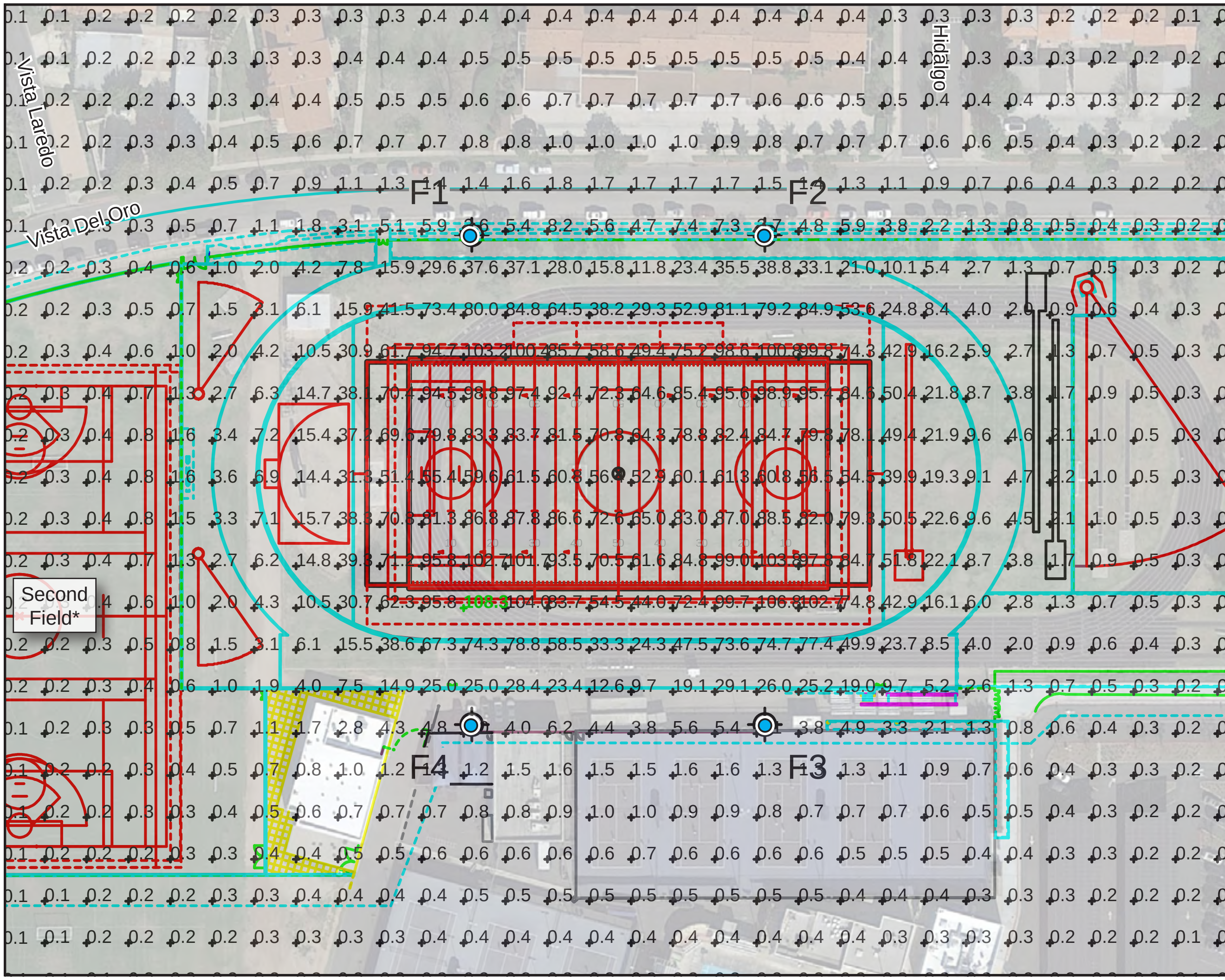
*This second field was inadvertently left out during modeling process and is not part of the Proposed Project.

0 150
Scale (Feet)

Base Map Source: Google Earth Pro, 2016; Lighting Data: Musco, 2016

This page intentionally left blank.

Figure 5.1-13 - Lighting Levels Plan (Vertical)



EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	F1-F4	80'	-	80'	1500W MZ	14	14	0
4	TOTALS					56	56	0

GRID SUMMARY

Name:	**Blanket Grid**
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

F1 Light Posts (4)

NOTE: Light levels shown in foot-candles. See Table 5.1-1 for comparative light levels.

*This second field was inadvertently left out during modeling process and is not part of the Proposed Project.

0 150
Scale (Feet)

Base Map Source: Google Earth Pro, 2016; Lighting Data: Musco, 2016

5. Environmental Analysis
AESTHETICS

This page intentionally left blank.

LED Lights

In order to evaluate spill light reduction values from LED lights instead of metal halide lighting, spill light calculation was conducted with LED lights. LED lights emit directional light over a target area, where metal halide lights emit omnidirectional light that needs to be reflected and/or redirected to the target area. Therefore, LED lights provide more sharply focused light with less spill light. Unlike metal halide lights, LED lights do not require a warming period to reach full operating power and can respond almost instantaneously to different lighting-level setting options. As shown in Figure 5.1-14, *LED Spill Light at 150 Feet (Horizontal),* the maximum horizontal light level near the residential uses to the north would be 0.2 fc, resulting in a 0.3 fc reduction from the proposed metal halide source. As shown in Figure 5.1-15, *LED Light Levels Plan (Vertical)*, the levels near the residential parking garage driveway area would range from 0.5 fc to 0.1 fc and drop to a range of 0.1 to 0.0 as the light beam reaches the residential structures. Figure 5.1-13 shows that spill light levels near the residential structures are 0.4 fc to 0.6 fc. As demonstrated in the LED light level figures, approximately 0.3 fc to 0.5 fc spill light reduction values would be achieved by installing LED lights instead of the proposed metal halide lights. Although LED lights would provide more operating efficiency over metal halide lights and also provide additional spill light reduction, the spill light levels under the proposed project would not result in significant light trespass impact, and an alternative LED lighting technology would not be required. The proposed metal halide lighting system would not result in a significant light and glare impact, and the LED lighting technology is not necessary to change the significance determination.

Glare

The proposed project would provide four 80-foot light poles with 14 metal halide luminaires per pole for a total of 56 luminaires. The type of luminaire to be installed is shown in Illustration AE-3, below. As shown, the proposed metal halide Green Generation Lighting allows each luminaire to be directionally shielded, aimed, and controlled so that the directed lights are substantially confined to the intended sports field area.

Illustration AE-3

Glare is light that causes visual discomfort or disability or a loss of visual performance. It generally occurs when an individual is facing the light source so that the light from it directly enters the eye. Illustration AE-2, above, shows the concepts of spill light, direct glare, and light trespass. Glare differs from spill light in that a viewer is not directly facing the source for spill light, but is seeing the illumination of objects receiving light from it.

5. Environmental Analysis
AESTHETICS

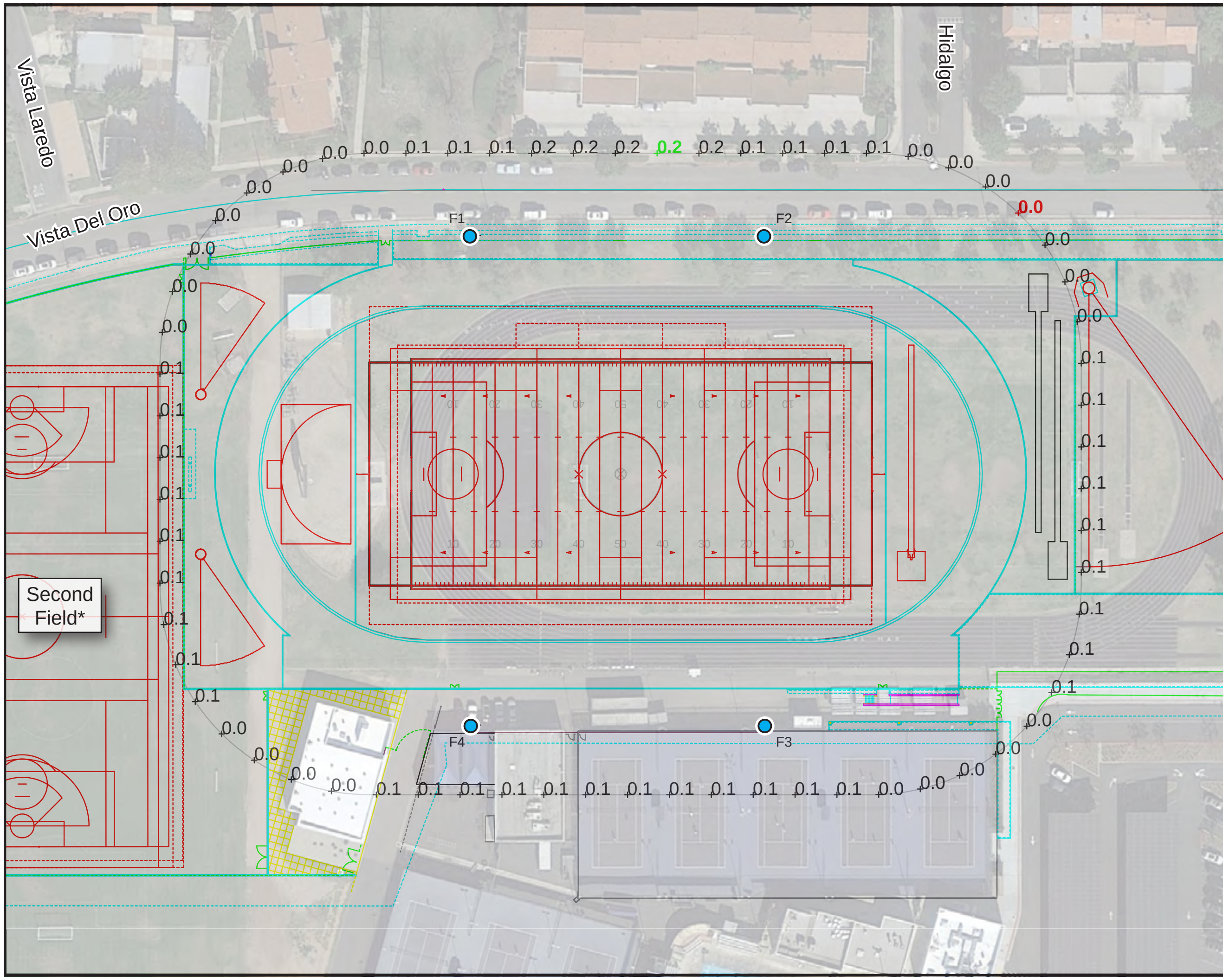
As shown in Figure 5.1-16, *Nighttime Visual Simulation Location Map*, one scenic view simulation and three community view nighttime visual simulations were performed. Although nighttime photos were taken from the Interpretative Center and Pacific Coast Highway, because of the intervening topography and background developments, distance, and the existing ambient lighting conditions, the proposed lighting poles were indistinguishable and visual simulation could not be conducted.

Figure 5.1-17, *Nighttime Visual Simulation from Galaxy View Park*, provides a nighttime visual simulation from Galaxy View Park. As shown, the most prominent light sources are the Park Newport Tennis Courts and buildings at Fashion Island. As shown in this figure, the 80-foot light poles are very difficult to identify and do not make a substantial glare impact to the nighttime skyline.

A "before" photograph was taken at West View location, which is from Mar Vista Drive at Vista Bonita, approximately 800 feet to the east, as shown in Figure 5.1-16. As shown in Figure 5.1-18, *Nighttime Visual Simulation from the West View*, the 80-foot metal halide lights would not create adverse nighttime glare impacts from the West View location because the distance and viewing location of luminaires reduce direct glare impact.

Figure 5.1-19, *Nighttime Visual Simulation from the North View*, shows visual simulation from the North View (see Figure 5.1-16, *Nighttime Visual Simulation Location Map*). The existing major sources of light are the swimming pool and the building lights from Fashion Island. As shown, swimming pool lights are partially shielded by the perimeter fencing for the tennis courts. The simulated view does not include the 12-foot noise wall and the 10-foot chain-link fencing, which would partially shield a direct view of the field and the home-side bleachers depicted in this visual simulation. As shown in this simulation view, the viewers from the north would be able to look up to the luminaires on the southern poles, which could create glare impacts. Figure 5.1-20, *Nighttime Visual Simulation from the Northeast View*, shows the Northeast View from Eastbluff Drive (see Figure 5.1-16). This simulated view is also without the new landscaping and 10-foot tubular-steel perimeter fencing to be provided along Eastbluff Drive, to better show the field lighting and bleachers. As with the North View simulation, viewers from the northeast would be able to look up to the luminaires on the southern poles and could experience glare impact. However, the luminaires would be affixed at 80 feet and directed downward, so the luminaires are not at eye height of sensitive viewers. It is typically lower mounting heights that give the luminaire a wider angle and make the bright parts of the lights more visible from positions outside the intended lighted area, which increases spill light and glare. This point is also illustrated in Illustration AE-4, below. As shown, at high mounting heights, the luminaire could be directed downward to make a narrow beam angle for reduced glare impact.

Figure 5.1-14 - LED Spill Light at 150 Feet (Horizontal)



EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	F1-F4	80'	-	25'	TLC-LED-1150	1	1	0
				80'	TLC-LED-1150	12	12	0
4	TOTALS					52	52	0

GRID SUMMARY

Name:	Spill @ 150'
Spacing:	30.0'
Height:	3.0' above grade

● F1 LED Light Posts (4)

NOTE: Light levels shown in foot-candles. See Table 5.1-1 for comparative light levels.

*This second field was inadvertently left out during modeling process and is not part of the Proposed Project.

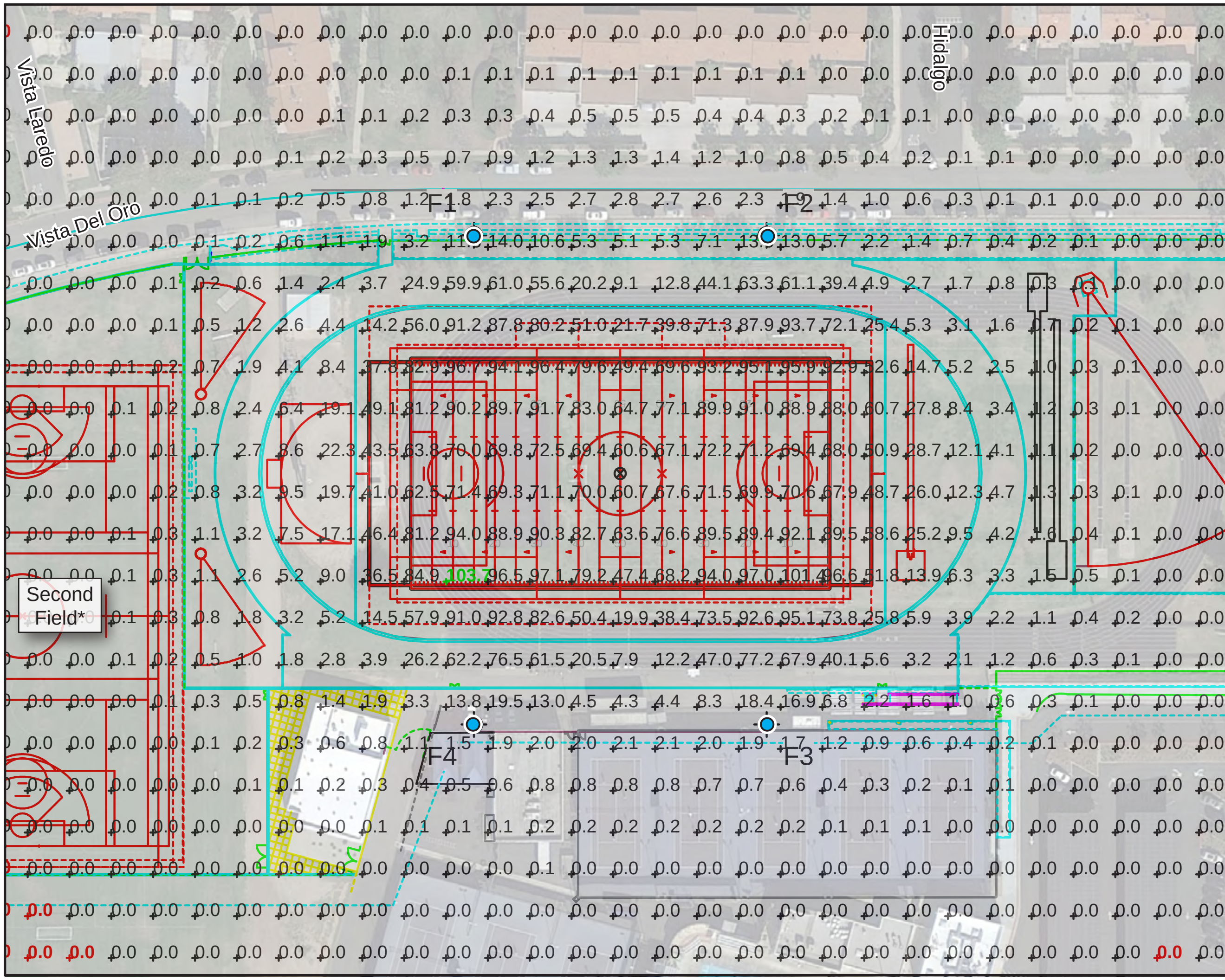
0 150
Scale (Feet)

Base Map Source: Google Earth Pro, 2016; Lighting Data: Musco, 2016

This page intentionally left blank.

Figure 5.1-15 - LED Light Levels Plan (Vertical)

5. Environmental Analysis



EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	F1-F4	80'	-	25'	TLC-LED-1150	1	1	0
				80'	TLC-LED-1150	12	12	0
4	TOTALS					52	52	0

GRID SUMMARY

Name: **Blanket Grid**
Spacing: 30.0' x 30.0'
Height: 3.0' above grade

● F1 LED Light Posts (4)

NOTE: Light levels shown in foot-candles. See Table 5.1-1 for comparative light levels.

*This second field was inadvertently left out during modeling process and is not part of the Proposed Project.

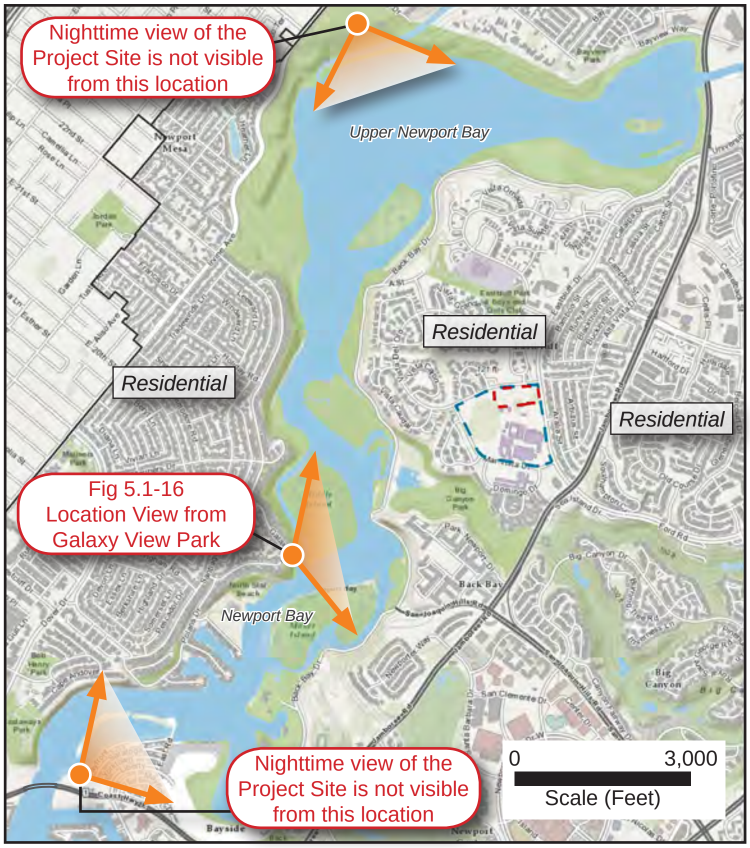
0 150
Scale (Feet)

Base Map Source: Google Earth Pro, 2016; Lighting Data: Musco, 2016

5. Environmental Analysis
AESTHETICS

This page intentionally left blank.

Figure 5.1-16 - Nighttime Visual Simulation Location Map



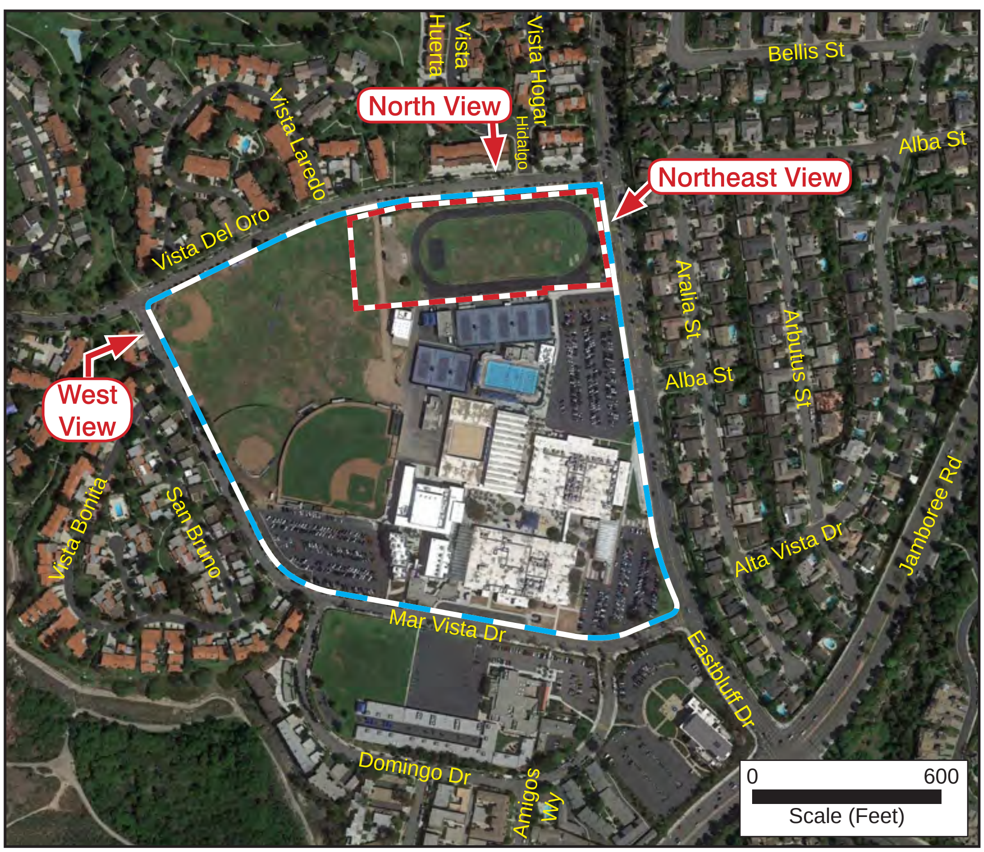
Scenic Views

Community Views

School Boundary

Sports Field Boundary

View Simulation Locations

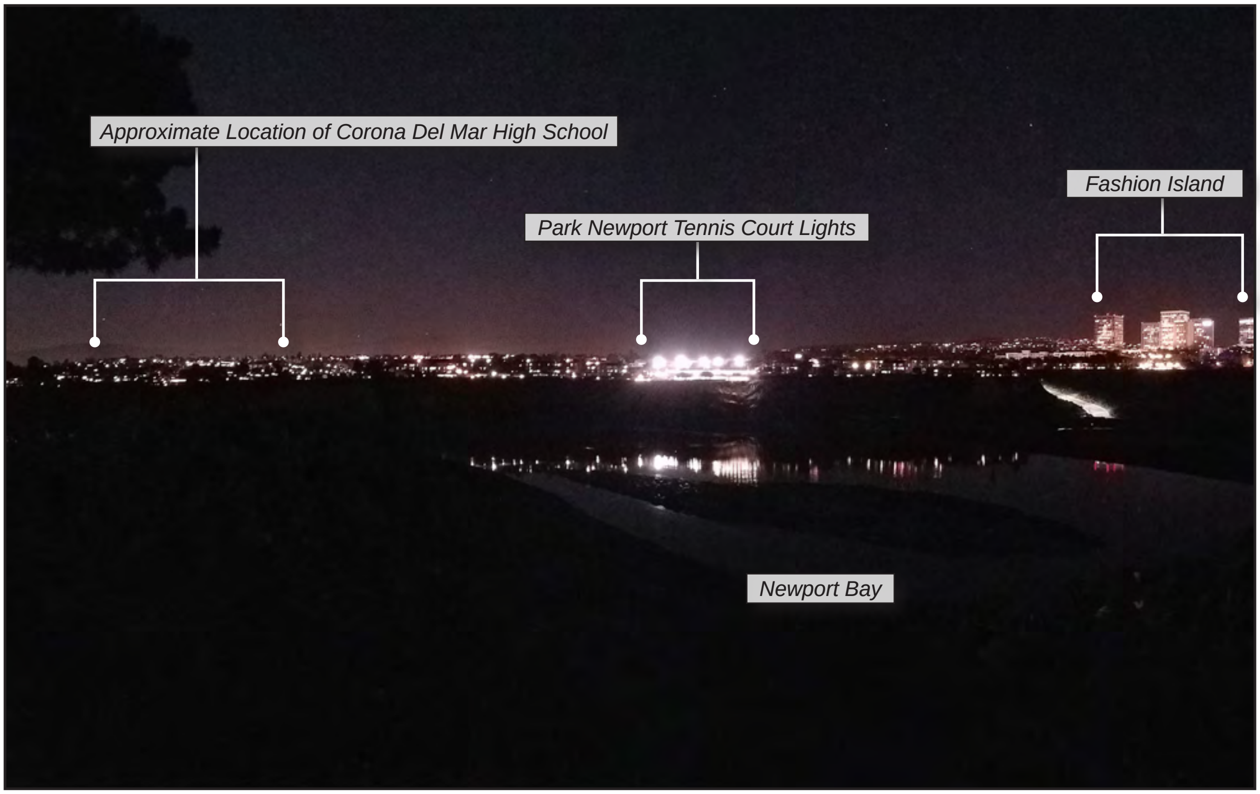


Base Map Source: USGS, FAO, NPS, NRCAN, 2016

5. Environmental Analysis
AESTHETICS

This page intentionally left blank.

Figure 5.1-17 - Nighttime Visual Simulation from Galaxy View Park



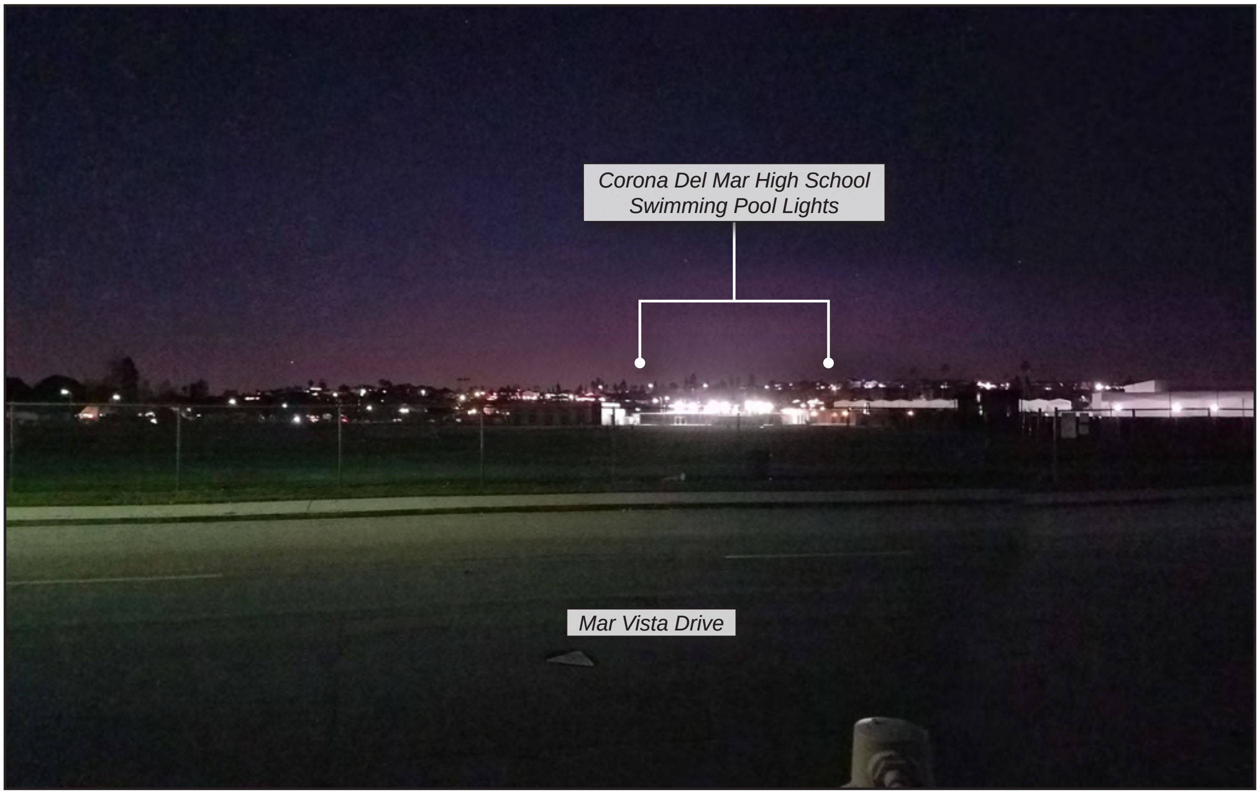
Existing View

Simulation View

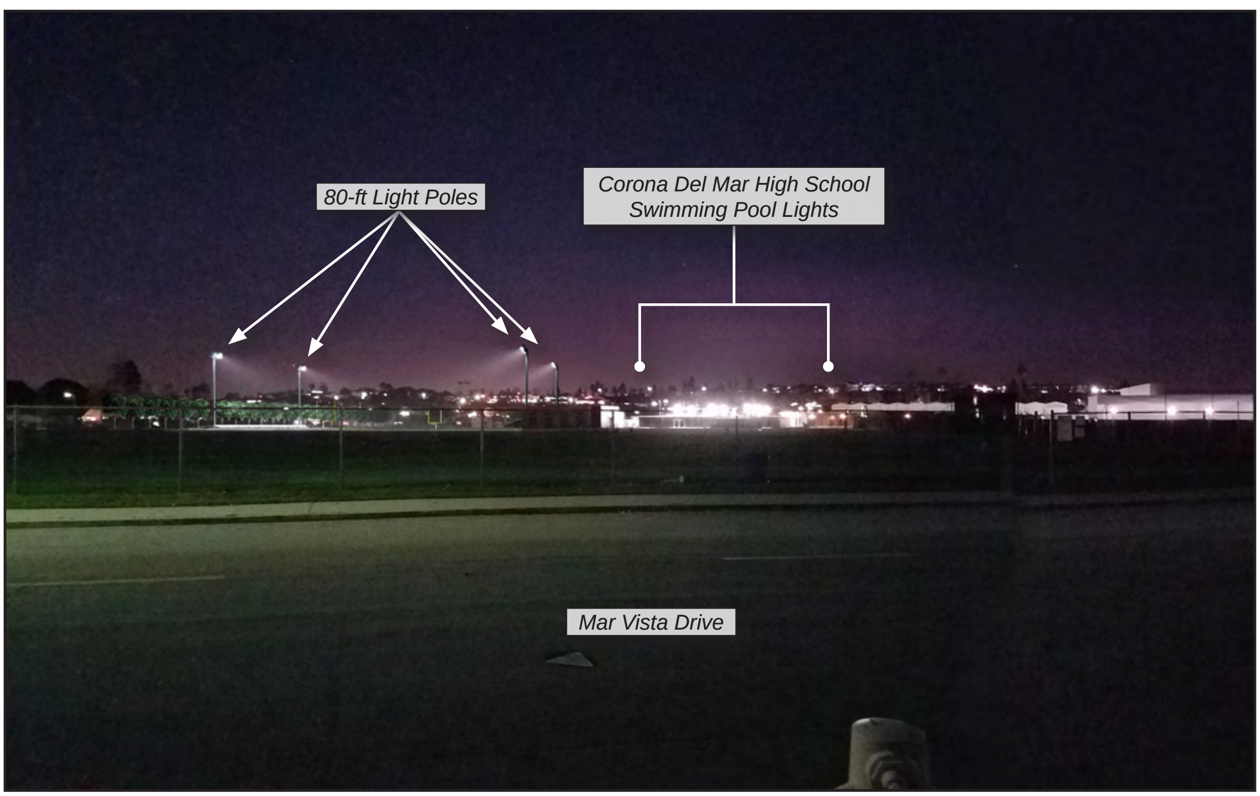
5. Environmental Analysis
AESTHETICS

This page intentionally left blank.

Figure 5.1-18 - Nighttime Visual Simulation from the West View



Existing View

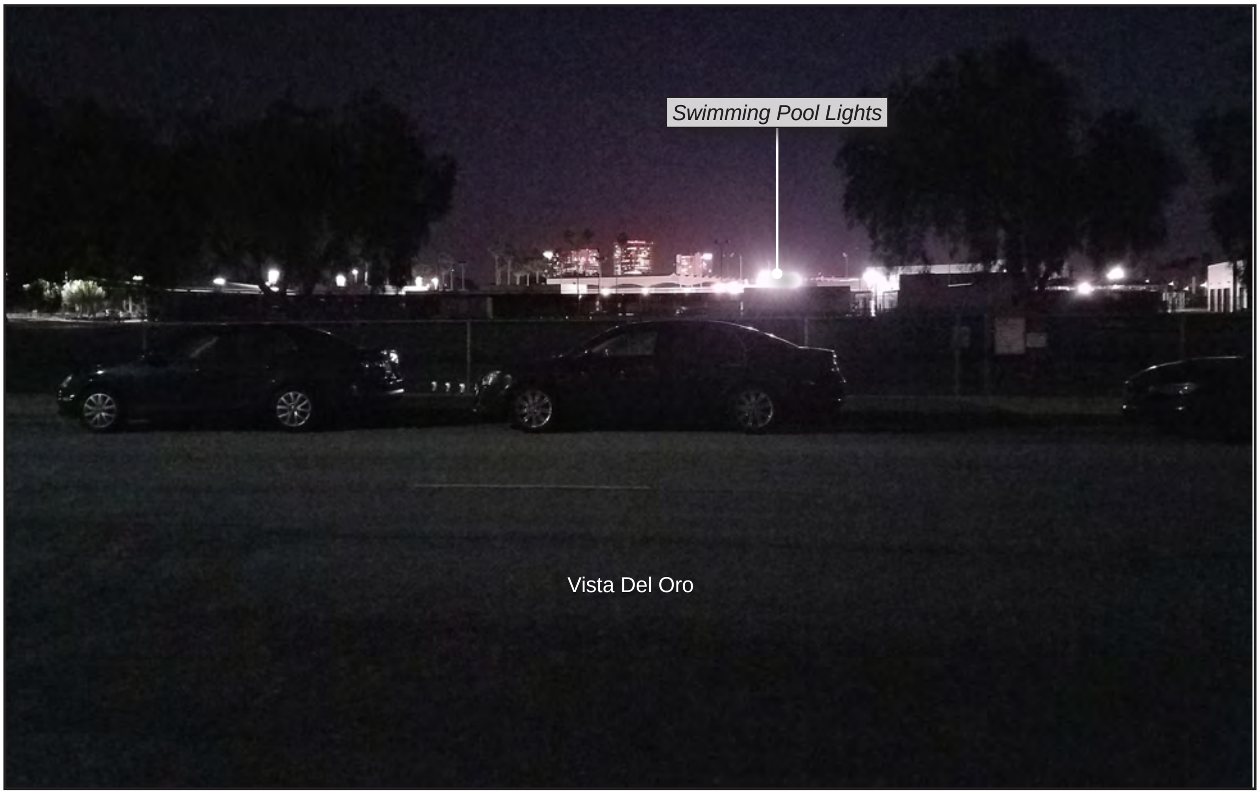


Simulation View

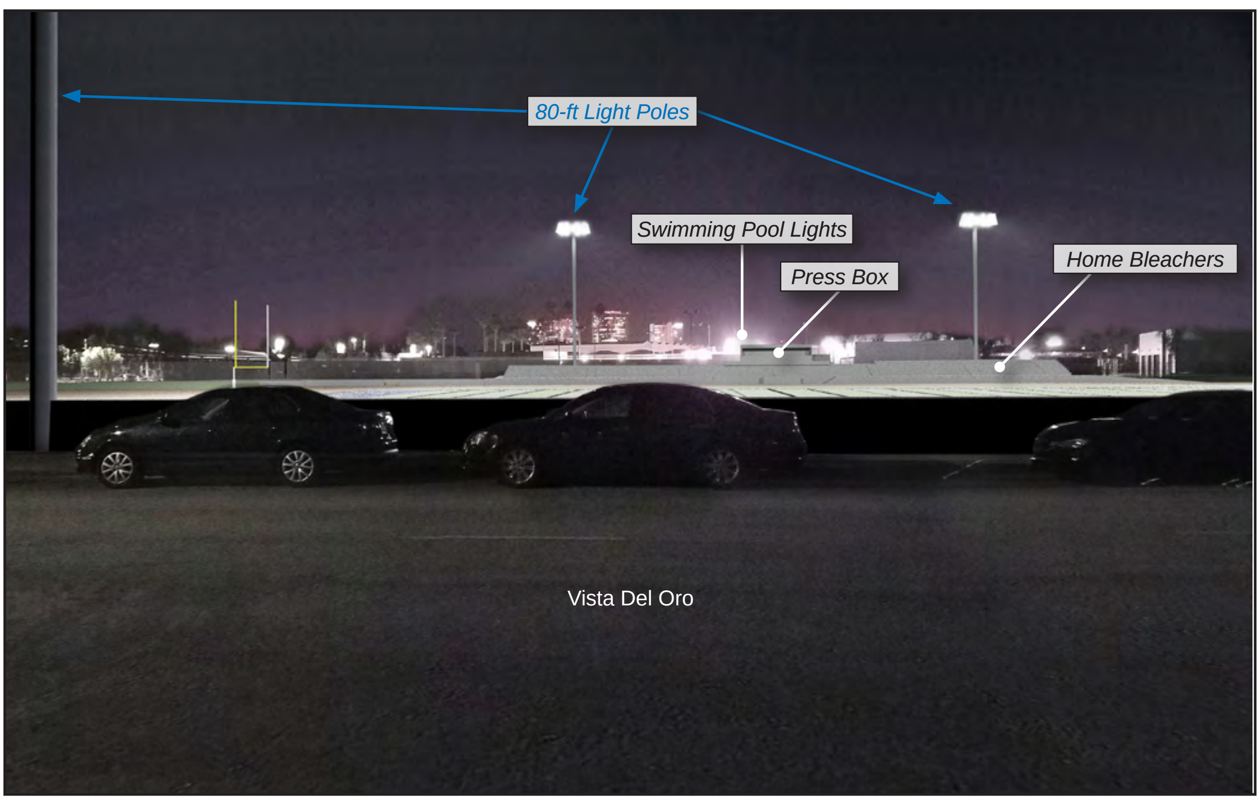
5. Environmental Analysis
AESTHETICS

This page intentionally left blank.

Figure 5.1-19 - Nighttime Visual Simulation from the North View



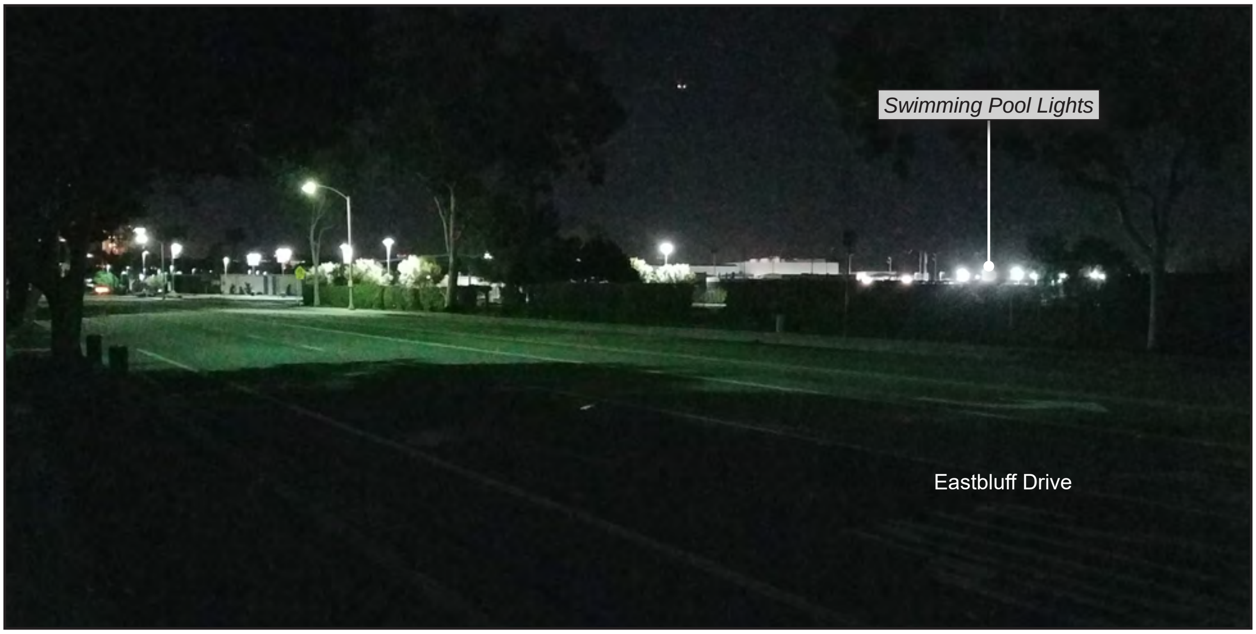
Existing View



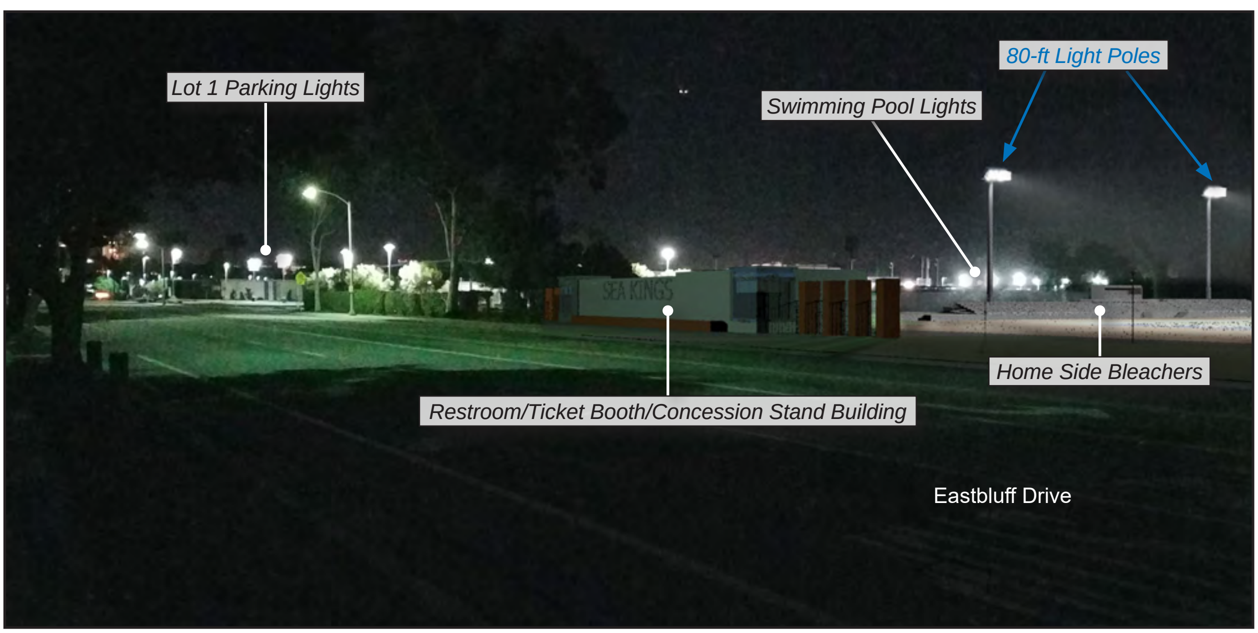
Simulation View

This page intentionally left blank.

Figure 5.1-20 - Nighttime Visual Simulation from the Northeast View



Existing View

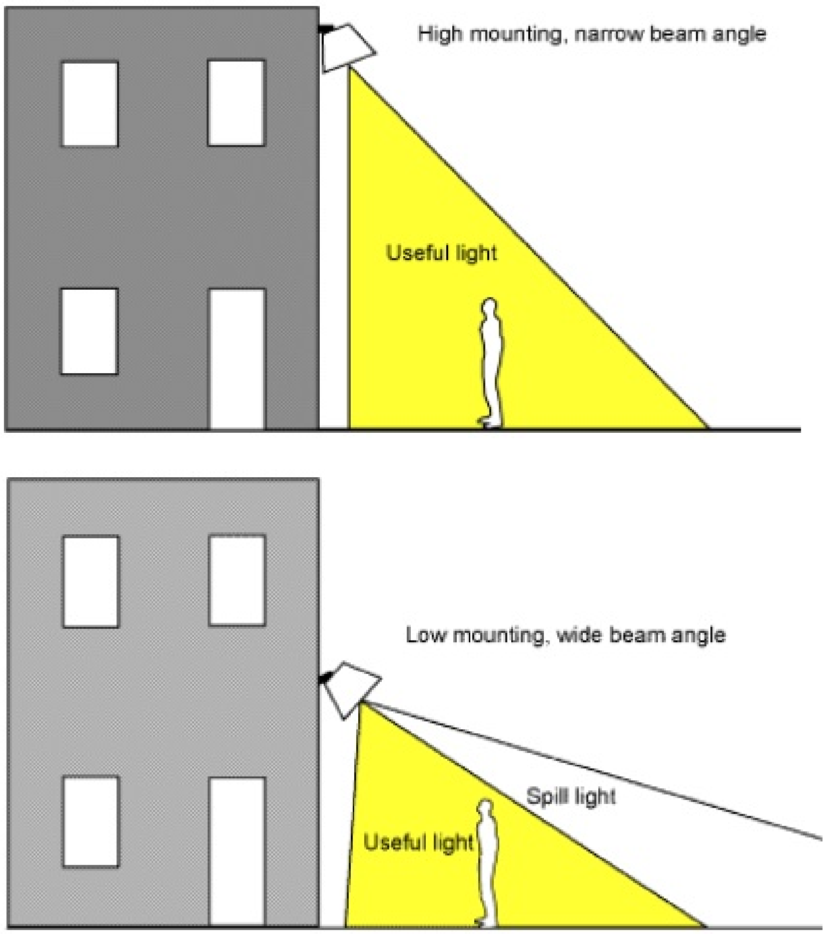


Simulation View

5. Environmental Analysis
AESTHETICS

This page intentionally left blank.

Illustration AE-4



Furthermore, compared to the existing swimming pool lights—shown in all "before" views of the nighttime simulation locations as a major source of light—the sports field lighting would be a less intrusive source of light or glare impacts. The swimming pool lighting system consists of 1000 Watt BT37 metal halide lamp type with a 110,000 design lumens. The swimming pool lights contain three lamps affixed on top of northern and southern poles and one lamp affixed on the eastern and western poles. Therefore, 330,000 lumens per pole is anticipated for four poles on the north and south, and 110,000 lumens for the four poles on the east and west. These lamps do not have visors or louvers to shield and control spill or upward light beams as with the proposed sports field lighting. In comparison, each pole for the proposed project would have a design lumen of 134,000, with visors and reflectors to shield and control direct spill light and glare impact. Since the proposed lighting would be designed to meet the spill light levels to 0.8 fc at residential units, it also illustrates that the source of lighting has been adequately shielded and angled downward to minimize glare, to the extent practicable, and ensures that direct view of the bright parts of the luminaire is prevented from areas outside the field. While the aesthetic impacts are subjective, Figures 5.1-11 and 13 show in foot-candle levels that spilling light levels would not result in a significant impact, and the associated glare impacts would also result in less than significant impact.

Sky Glow

Sky glow refers to the brightening of the night sky attributable to human-created sources of light. Light that is either emitted directly upward by luminaires or reflected from the ground is scattered by dust and gas molecules in the atmosphere, producing a luminous background. It should be noted that actual measurement of sky glow is very challenging due to many factors that play a role in sky glow. Sky glow depends on the lighting design (e.g., type of light, height, angular distribution of the light emitted), the light reflected from the ground and its angular distribution, and the atmospheric conditions (e.g., humidity, aerosols, clouds, haze, atmospheric pollution). And these reflection and atmospheric conditions can change from moment to moment (NLPIP 2016). Therefore, the current practice is to reduce sky glow by implementing the following measures: 1) using full cutoff luminaires to minimize the amount of light emitted upward directly from the luminaire; 2) reducing light levels; 3) turning off unneeded lights; 4) limiting lighted hours of outdoor sales areas, parking areas, and signs around important observing sights; 5) limiting lighting installations; and 6) mandating low-pressure sodium light sources, which allows astronomers to filter the line spectra from telescopic images. The proposed project incorporates and is consistent with these practices, where applicable.

- **Using full cutoff luminaires:** The proposed lighting system uses full cutoff luminaires, which means there is no direct uplighting. Direct upward light is shown in Illustration AE-2.

- **Reducing light levels, turning off unneeded lights, and limiting lighted hours:** The proposed lighting system would allow different lighting levels to accommodate different activities, and will not be lighted at average 50 fc for all activities. Unneeded light will be turned off, and the District's artificial turf light use policy will be followed, where the light use for practice will be permitted until 8 PM from Monday through Friday and for games until 10 PM.

- **Limiting lighting installations:** The number of light poles were reduced from 6 poles during the Notice of Preparation period to 4 poles during the DEIR preparation period.

- **Mandating low-pressure sodium light sources:** LPS lights are used mostly used for street lighting and provide the worst color rendering of any lamp type. Therefore, LPS is not suitable for sports field lighting, where color perception is an important factor in sporting events. Also, sodium is a hazardous material that can combust when exposed to air, such as if the bulb is broken in the trash.

Since the proposed project incorporates various practices to reduce sky glow as described above, impacts would be considered less than significant.

5.1.4 Cumulative Impacts

Development of cumulative projects combined with the proposed project would intensify the overall urbanized character of the surrounding area. Although some parts of the proposed improvements, such as the 80-foot lights poles, could be visible from other parts of the city, the visibility would be limited and would not change the visual character of the scenic viewsheds, of which the proposed project is part. Figure 5.1-4, *Visual Simulation from PCH*, Figure 5.1-5, *Visual Simulation from Galaxy View Park*, and Figure 5.1-6, *Visual*

Simulation from Interpretative Center, demonstrate that the 80-foot poles do not change the general aesthetic quality of the viewsheds.

The proposed project and the cumulative projects in the city would likely increase the overall source of lighting impacts in the city. However, while the proposed project would use metal halide system for the nighttime sports lighting, other cumulative projects would likely use widely available lighting technology such as LED lighting systems to reduce lighting impacts. The city's municipal code Section 20.30.070 requires all outdoor lighting fixtures to be designed, shielded, aimed, located, and maintained to shield adjacent properties and to not produce glare on adjacent properties or roadways. The municipal code also requires parking lot light fixtures and light fixtures on buildings to be full cutoff fixtures. The proposed project individually would not cause substantial light trespass, glare, and sky glow impacts outside the sports field, as discussed under Impact 5.1-3. Therefore, the anticipated cumulative light level increase in the city as a whole would not be considered a significant adverse impact.

While the lighting at the CdM swimming pool is an existing condition, the glare from these lights was identified as a concern of community members. Therefore, while the proposed sports field lighting does not represent a significant individual impact, and no mitigation is required other than to validate the assumptions in the analysis, the District is considering modifying the swimming pool lighting to provide shielding to the existing light fixtures. Modifications to the swimming pool lighting would improve the existing nighttime lighting conditions and reduce overall light and glare emanating from the CdM campus.

5.1.5 Existing Regulations and Standard Conditions

- City of Newport Beach Municipal Code
  - Chapter 20.30, Section 20.30.060 (Height Limits and Exceptions)
  - Chapter 20.60, Section 20.30.070 (Outdoor Lighting)

5.1.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and project design features, some impacts would be less than significant: 5.1-1 and 5.1-2.

Without mitigation, these impacts would be **potentially significant**:

- **Impact 5.1-3** The proposed project would create new artificial lighting source with light trespass and glare impacts.

5.1.7 Mitigation Measures

Impact 5.1-3

AE-1 Newport-Mesa Unified School District shall perform field light measurements after the lighting pole installation to demonstrate that actual spill light levels near the adjacent residential units to the north are a close match to the levels indicated in the light levels plan shown in Figure 5.1-11, *Lighting Levels Plan (Horizontal)*, and Figure 5.1-13, *Lighting Levels Plan (Vertical)*. The vertical light levels at the vertical surface of any residential unit shall not exceed 0.8 foot-candle, and each luminaire affixed on the pole shall be fully shielded and adjusted so that no direct upward beam permitted.

5.1.8 Level of Significance After Mitigation

The mitigation measures would reduce potential impacts to aesthetics to a level that is less than significant. Therefore, the proposed project would not have significant, unavoidable, adverse impacts to environmental aesthetics.

5.1.9 References

FieldTurf. 2016, August 24. FieldTurf Innovation & Research Centre Testing Report.

Illuminating Engineering Society (IES). 2011. Model Lighting Ordinance: User's Guide. http://www.ies.org/PDF/MLO/MLO_FINAL_June2011.pdf.

Institution of Lighting Engineers (ILE). 2003. Guidance Notes for the Reduction of Light Pollution. https://www.gov.je/SiteCollectionDocuments/Planning%20and%20building/SPG%20Lightpollution%202002.pdf.

Lighting Research Center (LRC). 2016. NLPIP: Lighting Answers: What are lighting environmental zones. http://www.lrc.rpi.edu/programs/NLPIP/lightingAnswers/lightPollution/environmentalZones.asp.

Musco Sports Lighting, LLC (Musco). 2015. Answers to 9 Common Questions. http://www.musco.com/ASA12_1/images/commonQuestions.pdf.

National Optical Astronomy Observatory. 2016 (accessed). Recommended Light Levels. https://www.noao.edu/education/QLTkit/ACTIVITY_Documents/Safety/LightLevels_outdoor+indoor.pdf.

San Diego County Land Use and Environment Group. 2009, January 15 (modified). Guidelines for Determining Significant and Report Format and Content Requirement. Dark Skies and Glare. http://www.sandiegocounty.gov/content/dam/sdc/pds/ProjectPlanning/docs/Dark_Skies_Guidelines.pdf.

5.2 AIR QUALITY

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for the proposed project to impact air quality in a local and regional context. This evaluation is based on the methodology recommended by the South Coast Air Quality Management District (SCAQMD). The analysis in this section is based on buildout of the proposed project, as modeled using the California Emissions Estimator Model (CalEEMod) and trip generation provided by IBI Group (see Appendix G1 to this DEIR). The criteria air pollutant emissions modeling for construction and operational phases are included in Appendix D of this DEIR.

5.2.1 Environmental Setting

5.2.1.1 REGULATORY FRAMEWORK

Ambient air quality standards (AAQS) have been adopted and are periodically updated at state and federal levels for criteria air pollutants. In addition, both the state and federal governments regulate the release of toxic air contaminants (TACs). The project site is within the South Coast Air Basin (SoCAB). Land use is subject to the rules and regulations imposed by SCAQMD, the California AAQS adopted by the California Air Resources Board (CARB), and National AAQS adopted by the United States Environmental Protection Agency (EPA). Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized below.

Federal and State Laws

Ambient Air Quality Standards

The Clean Air Act 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 Clean Air Act allows states to adopt more stringent standards or to include other pollutants. The California Clean Air Act, 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.

The National 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.

5. Environmental Analysis
AIR QUALITY

Both California and the federal government have established health-based AAQS for seven air pollutants, which are shown in Table 5.2-1, *Ambient Air Quality Standards for Criteria Pollutants*. These pollutants are 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.

Table 5.2-1 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[2]	
Respirable Coarse Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m³	*	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/m³	150 µg/m³	
Respirable Fine Particulate Matter ($PM_{2.5}$)[4]	Annual Arithmetic Mean	12 µg/m³	12 µg/m³	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/m³	
Lead (Pb)	30-Day Average	1.5 µg/m³	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	*	1.5 µg/m³	
	Rolling 3-Month Average	*	0.15 µg/m³	
Sulfates (SO_4)[5]	24 hours	25 µg/m³	*	Industrial processes.

Table 5.2-1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	*	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	*	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 hour	0.01 ppm	*	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 2016a.
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 AAQS 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 maintained 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 maintained. 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 Energy Efficiency Standards
- Title 24, Part 11, CCR: Green Building Standards Code

5. Environmental Analysis
AIR QUALITY

Tanner Air Toxics Act and Air Toxics "Hot Spot" Information and Assessment Act

Public exposure to 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 them. 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" (17 CCR § 93000). A substance that is listed as a hazardous air pollutant pursuant to Section 112(b) of the federal Clean Air Act (42 U.S. Code § 7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency, acting through CARB, is authorized to identify a substance as a TAC if it is an air pollutant that may cause or contribute to an increase in mortality or serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act set up 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 that TAC. 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 that are identified as having no safe threshold.

Under AB 2588, TAC 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 through notices and public meetings.

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

- **CARB Rule 2485** (13 CCR Chapter 10, § 2485), Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- **CARB Rule 2480** (13 CCR Chapter 10, § 2480), Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- **CARB Rule 2477** (13 CCR § 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

Air Pollutants of Concern

Criteria Air Pollutants

The pollutants emitted into the ambient air by stationary and mobile sources are categorized as primary and/or secondary pollutants. Primary air pollutants are emitted directly from sources. Carbon monoxide

(CO), volatile organic compounds (VOC), nitrogen oxides (NO_x), 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 AAQS have been established for them. VOC and NO_x are criteria pollutant precursors that form secondary criteria air pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and nitrogen dioxide (NO_2) are the principal secondary pollutants.

Each of the primary and secondary criteria air pollutants and its known health effects is described here.

- **Carbon Monoxide** is a colorless, odorless 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. 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 (SCAQMD 2005; USEPA 2016). The SoCAB is designated in attainment of CO criteria levels under the California and National AAQS (CARB 2015).

- **Volatile Organic Compounds** are composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of VOCs. Other sources include evaporative emissions from paints and solvents, asphalt paving, and household consumer products such as aerosols (SCAQMD 2005). There are no AAQS for VOCs. However, because they contribute to the formation of O_3, SCAQMD has established a significance threshold (see Section 5.2.2.1, *South Coast Air Quality Management District Thresholds*).

- **Nitrogen Oxides** are a by-product of fuel combustion and contribute to the formation of ground-level O_3, PM_{10}, and $PM_{2.5}$. The two major forms of NO_X are nitric oxide (NO) and nitrogen dioxide (NO_2). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. The principal form of NO_X produced by combustion is NO, but NO reacts quickly with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. NO_2 is an acute irritant and more injurious than NO in equal concentrations. At atmospheric concentrations, however, NO_2 is only potentially irritating. NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO_2 exposure concentrations near roadways are of particular concern for susceptible individuals, including asthmatics, children, and the elderly. Current scientific evidence links short-term NO_2 exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects, including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between elevated short-term NO_2 concentrations and increased visits to emergency departments and hospital admissions for respiratory issues, especially asthma (SCAQMD 2005; USEPA 2016). The SoCAB is designated an attainment area for NO_2 under the National and California AAQS (CARB 2015).

5. Environmental Analysis
AIR QUALITY

- **Sulfur Dioxide** 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 chemical processes at plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO_2. 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. Current scientific evidence links short-term exposures to SO_2, ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects, including bronchoconstriction and increased asthma symptoms. These effects are particularly adverse for asthmatics at elevated ventilation rates (e.g., while exercising or playing.) At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue. Studies also show a connection between short-term exposure and increased visits to emergency facilities and hospital admissions for respiratory illnesses, particularly in at-risk populations such as children, the elderly, and asthmatics (SCAQMD 2005; USEPA 2016). The SoCAB is designated attainment for SO_2 under the California and National AAQS (CARB 2015).

- **Suspended Particulate Matter** 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 particulate matter with an aerodynamic diameter of 10 microns or less (i.e., ≤10 millionths of a meter or 0.0004 inch). Inhalable fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns or less (i.e., ≤2.5 millionths of a meter or 0.0001 inch). Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. 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. The EPA's 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 far lower concentrations. These health effects include premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms (e.g., irritation of the airways, coughing, or difficulty breathing) (SCAQMD 2005). There has been emerging evidence that ultrafine particulates, which are 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), have human health implications, because ultrafine particulates' toxic components may initiate or facilitate biological processes that may lead to adverse effects to the heart, lungs, and other organs (SCAQMD 2013). However, the EPA or CARB has yet to adopt AAQS to regulate these particulates. Diesel particulate matter (DPM) is classified by CARB as a carcinogen (CARB 1998). Particulate matter can also cause environmental effects such as visibility impairment,[1] environmental damage,[2] and aesthetic

[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 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.

damage[3] (SCAQMD 2005; USEPA 2016). 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 2015).[4]

- **Ozone** 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 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 its formation. 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 (SCAQMD 2005; USEPA 2016). The SoCAB is designated extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour) (CARB 2015).

- **Lead** 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 (SCAMQD 2005; USEPA 2016). 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

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

[4] CARB approved the SCAQMD'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 did not violate federal 24-hour PM_{10} standards from 2004 to 2007. The EPA approved the State of California's request to redesignate the South Coast 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 (SCAQMD 2012).

5. Environmental Analysis
AIR QUALITY

for lead (SCAQMD 2012; CARB 2015). Because emissions of lead are found only in projects that are permitted by SCAQMD, lead is not a pollutant of concern for the project.

Toxic Air Contaminants

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 DPM as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particles are 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 lungs.

Community Risk

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 siting sensitive receptors near existing pollution sources. CARB's recommendations 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 substantially increases exposure and the potential for adverse health effects. Three carcinogenic TACs 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.

Air Quality Management Planning

SCAQMD is the agency responsible for improving air quality in the SoCAB and assuring that the National and California AAQS are attained and maintained. SCAQMD is 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.

2012 AQMP

On December 7, 2012, SCAQMD adopted the 2012 AQMP, which employs the most up-to-date science and analytical tools and incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources. It also addresses several state and federal planning requirements, incorporating new scientific information, primarily in the form of updated emissions inventories, ambient measurements, and new meteorological air quality models. The 2012

AQMP builds upon the approach identified in the 2007 AQMP for attainment of federal PM and ozone standards and highlights the significant amount of reductions needed and the urgent need to engage in interagency coordinated planning to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria air pollutant standards within the time frame allowed under the Clean Air Act. The 2012 AQMP demonstrates attainment of the federal 24-hour $PM_{2.5}$ standard by 2014 and the federal 8-hour ozone standard by 2023. While the 2012 AQMP focused on attainment of the 2006 federal 24-hour $PM_{2.5}$ standards, it has since been determined, primarily due to unexpected drought conditions, that it was impracticable to meet the standard by the original attainment year of 2014 (SCAQMD 2016). It includes an update to the revised EPA 8-hour ozone control plan with new commitments for short-term NO_X and VOC reductions. The plan also identifies emerging issues of ultrafine particulate matter ($PM_{1.0}$) and near-roadway exposure, and an analysis of energy supply and demand.

2016 Draft AQMP

The SCAQMD released a draft of the 2016 AQMP update on June 30, 2016. The 2016 AQMP is scheduled to be adopted in February 2017. The 2016 AQMP addresses strategies and measures to attain the 2008 federal 8-hour ozone standard by 2031, the 2012 federal annual $PM_{2.5}$ standard by 2025, the 2006 federal 24-hour $PM_{2.5}$ standard by 2019, the 1997 federal 8-hour ozone standard by 2023, and the 1979 federal 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 by year 2023 and to 100 tons per day 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 (SCAQMD 2016), which requires reducing NO_X emissions in the SoCAB to 250 tons per day. Reducing NO_X emissions would also reduce $PM_{2.5}$ concentrations. However, since the goal is to meet the 2012 federal annual $PM_{2.5}$ standard no later than year 2025, SCAQMD is seeking to reclassify the SoCAB from “moderate” to “serious” nonattainment under this federal standard. A “moderate” nonattainment would require meeting the 2012 federal standard no later than 2021. Overall, the 2016 AQMP is composed of stationary and mobile-source emission reductions from regulatory control measures and incentive-based programs; co-benefits from climate programs and mobile-source strategies; and reductions from federal sources such as aircrafts, locomotives, and ocean-going vessels. Strategies outlined in the 2016 AQMP will be implemented in collaboration between CARB and the EPA (SCAQMD 2016).

Lead State Implementation Plan

In 2008, the EPA designated the Los Angeles County portion of the SoCAB as a nonattainment area under the federal lead classification due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in the City of Vernon and the City of Industry that exceeded the new standard in the 2007-to-2009 period. The remainder of the SoCAB, outside the Los Angeles County nonattainment area, remains in attainment of the new 2008 lead standard. On May 24, 2012, CARB approved the State Implementation Plan (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 the EPA for approval.

SCAQMD Rules and Regulations

All projects are subject to SCAQMD rules and regulations in effect at the time of activity, including:

- **Rule 401, Visible Emissions.** This rule is intended to prevent the discharge of pollutant emissions from an emissions source that results in visible emissions. Specifically, the rule prohibits the discharge of any air contaminant into the atmosphere by a person from any single source of emission for a period or periods aggregating more than three minutes in any one hour that is as dark as or darker than designated No. 1 on the Ringelmann Chart, as published by the U.S. Bureau of Mines.

- **Rule 402, Nuisance.** This rule is intended to prevent the discharge of pollutant emissions from an emissions source that results in a public nuisance. Specifically, this rule prohibits any person from discharging quantities of air contaminants or other material from any source such that it would result in an injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public. Additionally, the discharge of air contaminants would also be prohibited where it would endanger the comfort, repose, health, or safety of any number of persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. This rule does not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

- **Rule 403, Fugitive Dust.** This rule is intended to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. Rule 403 applies to any activity or human-made condition capable of generating fugitive dust, and requires best available control measures to be applied to earth moving and grading activities.

- **Rule 1113, Architectural Coatings.** This rule limits the VOC content of architectural coatings used on projects in the SCAQMD. Any person who supplies, sells, offers for sale, or manufactures any architectural coating for use on projects in the SCAQMD must comply with the current VOC standards set in this rule.

5.2.1.2 EXISTING CONDITIONS

South Coast Air Basin

The project site is in the SoCAB, which includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. The SoCAB is in a coastal plain with connecting broad valleys and low hills; it is bounded by the Pacific Ocean in the southwest quadrant, and high mountains form the remainder of the perimeter. The general region lies in the semipermanent 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 (SCAQMD 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 is the Newport Beach Harbor Monitoring Station (ID 046175). The average low is reported at 46.9°F in January, and the average high is 73.4°F in August (WRCC 2016).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from November 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 averages 11.00 inches per year in the project area (WRCC 2016).

Humidity

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because 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 (SCAQMD 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 in both 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 (SCAQMD 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 (SCAQMD 2005).

SoCAB Nonattainment Designations

The AQMP provides the framework for air quality basins to achieve attainment of the California and National AAQS through the SIP. Areas are classified as attainment or nonattainment areas for particular pollutants depending on whether they meet the ambient air quality standards. Severity classifications for ozone nonattainment are marginal, moderate, serious, 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 AAQS 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 an 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 5.2-2, *Attainment Status of Criteria Pollutants in the South Coast Air Basin*. The SoCAB is designated in attainment of the California AAQS for sulfates and designated a nonattainment area for lead (Los Angeles County only) under the National AAQS.

Table 5.2-2 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
CO	Attainment	Attainment
NO_2	Attainment	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only)[1]
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2015.
[1] 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 within the SoCAB are unclassified.

SoCAB Multiple Air Toxics Exposure Study IV

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study on ambient concentrations of TACs and the potential health risks from air toxics in the SoCAB. In 2008, SCAQMD conducted its third update to the MATES study (MATES III) based on the Office of Environmental Health Hazards Assessment (OEHHA) 2003 Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (2003 HRA Guidance Manual). 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, which accounted for 84 percent of the cancer risk (SCAQMD 2008b).

SCAQMD recently released the fourth update (MATES IV), which was also based on OEHHA's 2003 HRA Guidance Manual. 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, and 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, which accounted 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 basinwide population-weighted risk decreased by approximately 57 percent since MATES III (SCAQMD 2015a).

OEHHA updated the guidelines for estimating cancer risks on March 6, 2015. The new method uses 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, SCAQMD estimates that risks for a given inhalation exposure level will be about 2.7 times higher than the risk identified in MATES IV using the 2015 OEHHA guidance methodology (e.g., 2.7 times higher than 418 in one million overall excess cancer risk) (SCAQMD 2015a).

Existing Ambient Air Quality

Existing ambient air quality, historical trends, and projections in the vicinity of the project site are best documented by measurements made by SCAQMD. The project site is in Source Receptor Area (SRA) 18 – North Orange County Coastal. The air quality monitoring station closest to the project site is the Costa Mesa-Mesa Verde Drive Monitoring Station. This station monitors O_3, CO, NO_2, and SO_2. Data for PM_{10} and $PM_{2.5}$ is supplemented by the Anaheim-Pampas Lane Monitoring Station. The most current five years of data monitored at these stations are included in Table 5.2-3, *Ambient Air Quality Monitoring Summary*. The data show recurring violations of state PM_{10}, federal $PM_{2.5}$, and state and federal O_3 standards. The CO, NO_2, and SO_2 standards have not been violated in the last five years in the project vicinity.

5. Environmental Analysis
AIR QUALITY

Table 5.2-3 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2011	2012	2013	2014	2015
Ozone (O_3)[1]					
State 1-Hour ≥ 0.09 ppm (days exceed threshold)	0	0	1	1	1
State 8-hour ≥ 0.07 ppm (days exceed threshold)	2	1	2	6	2
Federal 8-Hour > 0.075 ppm (days exceed threshold)	1	1	1	4	1
Max. 1-Hour Conc. (ppm)	0.093	0.090	0.095	0.096	0.099
Max. 8-Hour Conc. (ppm)	0.077	0.076	0.084	0.080	0.080
Carbon Monoxide (CO)[1]					
State 8-Hour > 9.0 ppm (days exceed threshold)	0	0	*	*	*
Federal 8-Hour ≥ 9.0 ppm (days exceed threshold)	0	0	*	*	*
Max. 8-Hour Conc. (ppm)	2.22	1.71	*	*	*
Nitrogen Dioxide (NO_2)[1]					
State 1-Hour ≥ 0.18 ppm (days exceed threshold)	0	0	0	0	0
Federal 1-Hour ≥ 0.100 ppm (days exceed threshold)	0	0	0	0	0
Max. 1-Hour Conc. (ppb)	60	74	75	60	52
Sulfur Dioxide (SO_2)[1]					
State 24-Hour ≥ 0.04 ppm (days exceed threshold)	0	0	0	*	*
Federal 24-Hour ≥ 0.14 ppm (days exceed threshold)	0	0	0	*	*
Max 24-Hour Conc. (ppm)	0.002	0.001	0.001	*	*
Coarse Particulates (PM_{10})[2]					
State 24-Hour > 50 μg/m^3 (days exceed threshold)	2	0	1	2	1
Federal 24-Hour > 150 μg/m^3 (days exceed threshold)	0	0	0	0	0
Max. 24-Hour Conc. (μg/m^3)	53.0	48.0	77.0	84.0	59.0
Fine Particulates ($PM_{2.5}$)[2]					
Federal 24-Hour > 35 μg/m^3 (days exceed threshold)	2	4	1	6	3
Max. 24-Hour Conc. (μg/m^3)	39.2	50.1	37.8	56.2	45.8

Source: CARB 2016b.
Notes: ppm = parts per million; ppb = parts per billion, μg/m^3 = micrograms per cubic meter
* Data not available.
1 Data from the Costa Mesa-Mesa Verde Drive Monitoring Station.
2 Data from the Anaheim-Pampas Lane Monitoring Station.

Existing Emissions

The project site currently generates emissions from operation of the existing Corona Del Mar High School and Middle School. Emission sources include transportation (e.g., vehicle emissions associated with student trips), area (e.g., paints buildings, consumer cleaning products), and energy (e.g., natural gas usage for heating).

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 cardiorespiratory diseases.

Residential areas are also considered sensitive 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. Other sensitive receptors include retirement facilities, hospitals, and schools. 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, commercial, retail, and office areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, because the majority of the workers tend to stay indoors most of the time. In addition, the workforce is generally the healthiest segment of the population.

The nearest sensitive receptors to the project site are the residential land uses to the north across Vista del Oro and to the east across Eastbluff Drive.

5.2.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

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

AQ-2 Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

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

AQ-4 Expose sensitive receptors to substantial pollutant concentrations.

AQ-5 Create objectionable odors affecting a substantial number of people.

The Initial Study, included as Appendix A, substantiates that impacts associated with the following thresholds would be less than significant:

- Threshold AQ-5

This impact will not be addressed in the following analysis.

5.2.2.1 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

The analysis of the project's air quality impacts follows the guidance and methodologies recommended in SCAQMD's *CEQA Air Quality Handbook* and the significance thresholds on SCAQMD's website.[6] CEQA allows the significance criteria established by the applicable air quality management or air pollution control

[6] SCAQMD's air quality significance thresholds are current as of March 2015 and can be found at: http://www.aqmd.gov/ceqa/hdbk.html.

district to be used to assess impacts of a project on air quality. SCAQMD has established regional thresholds of significance. In addition to the regional thresholds, projects are subject to the AAQS.

Regional Significance Thresholds

SCAQMD has adopted regional construction and operational emissions thresholds to determine a project's cumulative impact on air quality in the SoCAB. Table 5.2-4, *SCAQMD Significance Thresholds*, lists 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 and CARB have not yet adopted AAQS to regulate ultrafine particulates; therefore, SCAQMD has not developed thresholds for them.

Table 5.2-4 SCAQMD Significance Thresholds

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

Source: SCAQMD 2015f.

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 ($PM_{2.5}$) (SCAQMD 2015c)

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' 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 (SCAQMD 2015d).

Mass emissions in Table 5.2-4 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 trigger a regional health impact, and it is speculative to identify how many more individuals in the air basin would be affected by the health effects listed above. SCAQMD 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, SCAQMD prepares an AQMP that details regional programs to attain the AAQS.

Localized Significance Thresholds

SCAQMD identifies localized significance thresholds (LSTs), shown in Table 5.2-5, *SCAQMD Localized Significance Thresholds*. Emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at a project site (offsite mobile-source emissions are not included in the LST analysis) could expose sensitive receptors to substantial concentrations of criteria air pollutants. A project that generates emissions that trigger a violation of the AAQS when added to the local background concentrations would generate a significant impact.

Table 5.2-5 SCAQMD Localized Significance Thresholds

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)[1]	20 ppm
8-Hour CO Standard (CAAQS/NAAQS)	9.0 ppm
1-Hour NO_2 Standard (CAAQS)	0.18 ppm
Annual Average NO_2 Standard (CAAQS)[1]	0.03 ppm
24-Hour PM_{10} Standard – Construction (SCAQMD)[2]	10.4 μg/m^3
24-Hour $PM_{2.5}$ Standard – Construction (SCAQMD)[2]	10.4 μg/m^3
24-Hour PM_{10} Standard – Operation (SCAQMD)[2]	2.5 μg/m^3
24-Hour $PM_{2.5}$ Standard – Operation (SCAQMD)[2]	2.5 μg/m^3
Annual Average PM_{10} Standard (SCAQMD)[2]	1.0 μg/m^3

Source: SCAQMD 2015b.
ppm = parts per million; μg/m^3 = micrograms per cubic meter
[1] Based on the more restrictive California AAQS for CO and NO_2.
[2] Threshold is based on SCAQMD 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 not relevant.

To assist lead agencies, SCAQMD developed screening-level LSTs to back-calculate the mass amount (pounds per day) of emissions generated onsite that would trigger the hourly levels shown in Table 5.2-5 for projects under five acres. LSTs are based on the ambient concentrations of that pollutant within the project SRA and the distance to the nearest sensitive receptor. Screening-level LST analyses are the localized significance thresholds for all projects of five acres and less; however, they 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 5.2-5.

The construction LSTs in SRA 18 are shown in Table 5.2-6, *SCAQMD Construction Localized Significance Screening Thresholds*. For construction activities, LSTs are based on the acreage disturbed per day according to

5. Environmental Analysis
AIR QUALITY

equipment use. The different types of construction activities would require different equipment mixes, resulting in multiple LSTs.

Table 5.2-6 SCAQMD Construction Localized Significance Screening Thresholds

Acreage Disturbed	Threshold (lbs/day)			
	Nitrogen Oxides (NO_X)	Carbon Monoxide (CO)	Coarse Particulates (PM_{10})	Fine Particulates ($PM_{2.5}$)
≤1.00 Acre Disturbed Per Day	92	647	4.00	3.00
1.63 Acres Disturbed Per Day	116	844	5.87	4.25
2.00 Acres Disturbed Per Day	131	962	7.00	5.00
2.63 Acres Disturbed Per Day	145	1,118	8.45	5.83
3.00 Acres Disturbed Per Day	153	1,212	9.33	6.33

Source: SCAQMD 2008a. Based on receptors in SRA 18.
[1] LSTs are based on sensitive receptors within 82 feet (25 meters).

The operational LSTs in SRA 18 are shown in Table 5.2-7, *SCAQMD Screening-Level Operational Localized Significance Thresholds*.

Table 5.2-7 SCAQMD Screening-Level Operational Localized Significance Thresholds

Air Pollutant	Threshold (lbs/day) Operational[1]
Nitrogen Oxides (NO_X)	197
Carbon Monoxide (CO)	1,711
Coarse Particulates (PM_{10})	4.00
Fine Particulates ($PM_{2.5}$)	2.00

Source: SCAQMD 2008a.
[1] LSTs are based on sensitive receptors within 82 feet (25 meters) of a 5-acre site in SRA 18.

5.2.2.2 CO HOTSPOTS

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to AAQS is typically demonstrated through an analysis of localized CO concentrations. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. With the turnover of older vehicles and introduction of cleaner fuels, as well as implementation of control technology on industrial facilities, CO concentrations in the SoCAB and the state have steadily declined.

5.2.2.3 HEALTH RISK ANALYSIS

Whenever a project would require use of chemical compounds that have been identified in SCAQMD Rule 1401; placed on CARB's air toxics list pursuant to AB 1807, the Air Contaminant Identification and Control Act (1983); or placed on the EPA's National Emissions Standards for Hazardous Air Pollutants, a health risk assessment is required by SCAQMD. Table 5.2-8, *SCAQMD Toxic Air Contaminants Incremental Risk Thresholds*, lists SCAQMD's 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 proposed project's 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 these thresholds are typically applied to new industrial projects.

Table 5.2-8 SCAQMD Toxic Air Contaminants Incremental Risk Thresholds

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

Source: SCAQMD 2015b.

5.2.3 Environmental Impacts

5.2.3.1 METHODOLOGY

This air quality evaluation was prepared in accordance with the requirements of CEQA to determine if significant air quality impacts are likely to occur in conjunction with implementation of the proposed project. SCAQMD has published guidelines that are intended to provide local governments with guidance for analyzing and mitigating air quality impacts and that were used in this analysis (SCAQMD 1993; SCAMQD 2008a; SCAQMD 2015b; SCAQMD 2015e). The analysis also makes use of CalEEMod 2016.3.1 for determination of daily construction and operational emissions. Construction emissions are based on the construction information provided by the District. Where specific information was not available, construction assumptions were based on CalEEMod defaults and similar past projects (see Appendix D). Operational emissions impacts are based on the trip generation provided by IBI Group (see Appendix G1).

5.2.3.2 IMPACT ANALYSIS

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.2-1: The proposed project would be consistent with the South Coast Air Quality Management District's Air Quality Management Plan. [Threshold AQ-1]

Impact Analysis: SCAQMD is directly responsible for reducing emissions from area, stationary, and mobile sources in the SoCAB to achieve National and California AAQS. SCAQMD has responded to this requirement by preparing an AQMP. On December 7, 2012, the SCAQMD Governing Board adopted the 2012 AQMP, which is a regional and multiagency effort (SCAQMD, CARB, SCAG, and EPA). Additionally, on June 30, 2016, SCAQMD released a draft of the 2016 AQMP. The 2016 AQMP is scheduled to be adopted in February of 2017.

A consistency determination with the AQMP plays an important role in local agency project review by linking local planning and individual projects to the AQMP. It fulfills the CEQA goal of informing decision makers of the environmental efforts of the project under consideration early enough to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to the clean air goals in the AQMP.

The two principal criteria for conformance to an AQMP are:

- Whether the project would exceed the assumptions in the AQMP.
- Whether the project would result in an increase in the frequency or severity of existing air quality violations; cause or contribute to new violations; or delay timely attainment of air quality standards.

SCAG is SCAQMD's partner in the preparation of the AQMP, providing the latest economic and demographic forecasts and developing transportation measures. The regional emissions inventory for the SoCAB is compiled by SCAQMD using demographic projections compiled by SCAG. The regional population, housing, and employment projections developed by SCAG are based, in part, on the underlying general plan land use designations. These projections form the foundation for the emissions inventory of the AQMP. These demographic trends are incorporated into the regional transportation plan/sustainable communities strategy, compiled by SCAG to determine priority transportation projects and vehicle miles traveled within the SCAG region. Because the AQMP strategy is based on projections from local general plans, projects that are consistent with the local general plan are considered consistent with the air quality-related regional plan.

Changes in population, housing, or employment growth projections have the potential to affect SCAG's demographic projections and therefore the assumptions in SCAQMD's AQMP. Additionally, only large projects typically have the potential to substantially effect the demographic forecasts in the AQMP.

The proposed project involves improvement to an existing MS/HS campus and would not affect regional population or employment forecasts. Furthermore, long-term emissions generated by events at proposed Sports Field would not exceed SCAQMD's regional operational thresholds, as discussed under Impact 5.2-3. Criteria air pollutants generated during operation of the proposed project are compared to SCAQMD's regional significance thresholds (see Impact 5.2-3), which were established to determine whether a project has the potential to cumulatively contribute to the SoCAB's nonattainment designations. As a result, the proposed project would not affect the regional emissions inventory or conflict with the AQMP. Impacts are less than significant.

Impact 5.2-2: Construction activities associated with implementation of the proposed project would not generate short-term emissions that exceed the South Coast Air Quality Management District's regional thresholds. [Thresholds AQ-2 and AQ-3]

Impact Analysis: A project would normally have a significant effect on the environment if it violates any air quality standard or contributes substantially to an existing or projected air quality violation. Construction activities produce combustion emissions from various sources, such as onsite heavy-duty construction vehicles, vehicles hauling materials to and from the site, and motor vehicles transporting the construction crew. Site preparation activities produce fugitive dust emissions (PM_{10} and $PM_{2.5}$) from grading and excavation and from demolition. Air pollutant emissions from construction activities onsite would vary daily as construction activity levels change.

Construction activities for the proposed project would temporarily increase PM_{10}, $PM_{2.5}$, VOC, NO_X, SO_X, and CO regional emissions in the SoCAB. Activities would include demolition, site preparation, grading, utility trenching, structures and ancillary building construction, field light installation, and paving. Construction emissions were estimated using CalEEMod 2016.3.1 based on the project's preliminary construction schedule, phasing, and equipment list provided by the District. The construction schedule and equipment mix is based on preliminary engineering and is subject to changes during final design and as dictated by field conditions. Estimates of maximum daily construction emissions are provided in Table 5.2-9, *Maximum Daily Regional Construction Emissions*. As shown in the table, air pollutant emissions from construction-related activities would be less than their respective SCAQMD regional significance threshold values. Therefore, air quality impacts from project-related construction activities would be less than significant. No mitigation measures are required.

Table 5.2-9 Maximum Daily Regional Construction Emissions

	Criteria Air Pollutants (pounds per day)[1, 2]					
Source	**VOC**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
2017 Asphalt Demolition	3	27	22	<1	2	2
2017 Asphalt Demolition + Asphalt Demo Debris Haul + Structure Demolition + Structure Demo Debris Haul	8	90	50	<1	10	5
2017 Structure Demolition + Structure Demo Debris Haul	4	44	24	<1	2	2
2017 Site Preparation	2	23	16	<1	3	2
2017 Rough Grading	2	23	16	<1	3	2
2017 Rough Grading + Utility Trenching	3	30	21	<1	4	3
2017 Utility Trenching	1	7	5	<1	1	<1
2017 Utility Trenching + Fine Grading	3	30	21	<1	4	3
2017 Fine Grading	2	23	16	<1	3	2
2017 Building Construction	1	8	7	<1	1	1
2018 Building Construction	1	7	7	<1	<1	<1
2018 Building Construction + Asphalt Paving	2	17	16	<1	1	1
2018 Building Construction + Asphalt Paving + Finishing/Landscaping	3	22	17	<1	1	1
2018 Building Construction + Finishing/Landscaping	2	12	8	<1	1	1
2018 Building Construction + Finishing/Landscaping +	3	18	11	<1	1	1

5. Environmental Analysis
AIR QUALITY

Table 5.2-9 Maximum Daily Regional Construction Emissions

Source	Criteria Air Pollutants (pounds per day)[1, 2]					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Field Light Installation						
2018 Building Construction + Field Light Installation	2	13	9	<1	1	1
2018 Building Construction + Architectural Coating	2	7	7	<1	<1	<1
Maximum Daily Emissions	8	90	50	<1	10	5
SCAQMD Regional Construction Threshold	75	100	550	150	150	55
Significant?	No	No	No	No	No	No

Source: CalEEMod 2016.3.1.
Note: Totals may not add up to 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 past similar projects or CalEEMod defaults, which are based on construction surveys conducted by SCAQMD of construction equipment and phasing for comparable projects.
2 Includes implementation of fugitive dust control measures required by SCAQMD 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. Modeling also assumes a VOC content of 100 grams per liter for exterior paints and 100 VOC content interior paints.

Impact 5.2-3: Long-term criteria air pollutant emissions associated with the proposed project would not exceed the South Coast Air Quality Management District's regional operational significance thresholds. [Thresholds AQ-2 and AQ-3]

Impact Analysis: Operation of the proposed improvements would generate criteria air pollutant emissions from area sources (e.g., landscape fuel use and architectural coatings), energy use (natural gas), and vehicle trips. Impacts are based on criteria air pollutant emissions generated by a worst-case, peak-capacity event at the 1,000-seat Sports Field, which would generate a total of 650 average daily trips according to the traffic impact report (see Appendix G1). Table 5.2-10, *Maximum Daily Regional Operational Emission*, shows criteria air pollutant emissions from the proposed project. Project-related long-term air pollutant emissions would not exceed SCAQMD's regional significance thresholds. Therefore, impacts to the regional air quality from project-related operational phase emissions would be less than significant.

Table 5.2-10 Maximum Daily Regional Operational Emissions

Source	Criteria Air Pollutants (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Area	<1	<1	<1	<1	<1	<1
Energy	<1	<1	<1	<1	<1	<1
Mobile Sources	2	2	18	<1	4	1
Total Emissions	2	2	18	<1	4	1
SCAQMD Regional Threshold	55	55	550	150	150	55
Exceeds Regional Threshold?	No	No	No	No	No	No

Source: CalEEMod 2016.3.1.
Notes: Highest winter or summer emissions are reported.
Totals may not add up to 100 percent due to rounding.

Impact 5.2-4: Construction of the proposed project would not expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-4]

Impact Analysis: The proposed project could expose sensitive receptors to elevated pollutant concentrations if it would cause or contribute significantly to elevated pollutant concentration levels. Unlike regional emissions, localized emissions are typically evaluated in terms of air concentration rather than mass so they can be more readily correlated to potential health effects.

Construction LSTs

Localized significance thresholds (LSTs) are based on the California AAQS, which are the most stringent AAQS that have been established to provide a margin of safety in the protection of public health and welfare. They are designated 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 people engaged in strenuous work or exercise. Construction LSTs are based on the size of the project site, distance to the nearest sensitive receptor, and Source Receptor Area. The nearest sensitive receptors to the project site are the residential land uses to the north across Vista del Oro and to the east across Eastbluff Drive.

Air pollutant emissions generated by construction activities are anticipated to cause increases in air pollutant concentrations. Table 5.2-11, *Localized Construction Emissions,* shows the maximum daily construction emissions (pounds per day) onsite compared with the SCAQMD's LSTs. As shown in the table, construction activities would not exceed the LSTs. Therefore, localized impacts would be less than significant, and no mitigation measures are required.

Table 5.2-11 Localized Construction Emissions

Source	Pollutants (pounds per day)[1, 2]			
	NO_X	CO	PM_{10}	$PM_{2.5}$
2017 Structure Demolition + Structure Demo Debris Haul	43	23	2.26	2.05
2017 Utility Trenching	6	5	0.46	0.42
2017 Building Construction	8	7	0.54	0.53
2018 Building Construction	7	7	0.47	0.46
2018 Building Construction + Asphalt Paving	17	15	1.06	1.01
2018 Building Construction + Asphalt Paving + Finishing/Landscaping	22	17	1.24	1.17
2018 Building Construction + Finishing/Landscaping	12	8	0.65	0.63
2018 Building Construction + Finishing/Landscaping + Field Light Installation	18	11	0.96	0.91
2018 Building Construction + Field Light Installation	13	9	0.78	0.75
2018 Building Construction + Architectural Coating	7	7	0.47	0.46
SCAQMD ≤1.00-acre LST	**92**	**647**	**4.00**	**3.00**
Exceeds LST?	No	No	No	No
2017 Site Preparation	22	15	3.37	2.24
2017 Rough Grading	22	15	3.37	2.24
2017 Fine Grading	22	15	3.37	2.24

5. Environmental Analysis
AIR QUALITY

Table 5.2-11 Localized Construction Emissions

Source	Pollutants (pounds per day)[1, 2]			
	NO_X	CO	PM_{10}	$PM_{2.5}$
SCAQMD 1.63-acre LST	**116**	**844**	**5.87**	**4.25**
Exceeds LST?	No	No	No	No
2017 Asphalt Demolition	27	21	1.61	1.50
SCAQMD 2.00-acre LST	**131**	**962**	**7.00**	**5.00**
Exceeds LST?	No	No	No	No
2017 Rough Grading + Utility Trenching	29	20	3.83	2.67
2017 Utility Trenching + Fine Grading	29	20	3.83	2.67
SCAQMD 2.63-acre LST	**145**	**1,118**	**8.45**	**5.83**
Exceeds LST?	No	No	No	No
2017 Asphalt Demolition + Asphalt Demo Debris Haul + Structure Demolition + Structure Demo Debris Haul	69	44	9.02	4.34
SCAQMD 3.00-acre LST	**153**	**1,212**	**9.33**	**6.33**
Exceeds LST?	No	No	No	No

Source: CalEEMod 2016.3.1; SCAQMD 2008a; SCAQMD 2011.
Note: In accordance with SCAQMD methodology, only onsite stationary sources and mobile equipment are included in the analysis.
1 Based on the preliminary information provided by the District. Where specific, project-related information was not available, construction assumptions were based on past similar projects or CalEEMod defaults, which are based on construction surveys conducted by SCAQMD of construction equipment and phasing for comparable projects.
2 Includes implementation of fugitive dust control measures required by SCAQMD 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. Modeling also assumes a VOC content of 100 grams per liter for exterior paints and 100 VOC content interior paints.
3 LSTs are based on sensitive receptors within 82 feet (25 meters) of a 5-acre site in SRA 18.

Health Risk Assessment

SCAQMD currently does not require health risk assessments for short-term emissions from construction equipment, which primarily consist of DPM. The state OEHHA adopted new guidance for preparing health risk assessments in March 2015 and developed a cancer risk factor and noncancer chronic reference exposure level for DPM. However, these factors are based on continuous exposure over a 30-year time frame; no short-term acute exposure levels have been developed for DPM. The proposed project would be developed in approximately 8 months, which is less than the 30-year exposure period for DPM or risk accumulated over a 70-year lifetime and would limit the exposure of onsite and offsite receptors. SCAQMD uses the construction LST analysis as an indicator of potential health risk. As shown in Table 5.2-11, construction activities would not exceed LST significance thresholds. Therefore, construction emissions are not anticipated to pose a threat to onsite and offsite receptors. Project-related construction health impacts would be less than significant, and no mitigation measures are required.

Impact 5.2-5: Operation of the proposed project would not expose offsite sensitive receptors to substantial concentrations of air pollutants. [Threshold AQ-5]

Impact Analysis: Project operation would expose sensitive receptors to elevated pollutant concentrations if it causes or significantly contributes to elevated pollutant concentration levels. Unlike regional emissions, localized emissions are typically evaluated in terms of air concentration rather than mass so they can be more readily correlated to potential health effects.

Operation LSTs

Operation of the proposed project would not generate substantial emissions from onsite, stationary sources. Land uses that have the potential to generate substantial stationary-source emissions would require a permit from SCAQMD and include industrial land uses such as chemical processing and warehousing operations where substantial truck idling could occur onsite. The proposed project does not fall within this category of uses. Operation of the proposed project would entail the use of standard mechanical equipment—such as heating, ventilation, and air conditioning units—and the occasional use of landscaping equipment for project site maintenance. However, air pollutant emissions generated from these activities would be below the SCAQMD LST threshold, as shown in Table 5.2-12, *Localized Operation Emissions*. Therefore, localized air quality impacts related to stationary-source emissions would be less than significant.

Table 5.2-12 Localized Operation Emissions

Source	Pollutants (pounds per day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Area	<1	<1	<0.01	<0.01
Energy	<1	<1	<0.01	<0.01
Maximum Daily Onsite Operation Emissions	<1	<1	<0.01	<0.01
SCAQMD LST	**197**	**1,711**	**4.00**	**2.00**
Exceeds LST?	No	No	No	No

Source: CalEEMod 2016.3.1; SCAQMD 2008a, Appendix A.
In accordance with SCAQMD methodology, only onsite stationary sources and mobile equipment occurring on the proposed project site are included in the analysis. LSTs are based on sensitive receptors within 82 feet (25 meters) of a 5-acre site in SRA 18.

Carbon Monoxide Hotspots

Areas of vehicle congestion have the potential to create CO hotspots that exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9.0 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds.

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 2011). Trip generation for the proposed project would be significantly less than these volumes—i.e., up to 650 average daily trips (325 inbound trips and 325 outbound trips) on worst-case, full-capacity event days at the 1,000 seat Sports Field. Furthermore, the SoCAB is designated as attainment under both the National and California AAQS for CO. The project would not have the potential to substantially increase CO hotspots at intersections in the vicinity of the project site. Localized air quality impacts related to mobile-source emissions would be less than significant, and no mitigation measures are required.

5.2.4 Cumulative Impacts

In accordance with SCAQMD's methodology, any project that produces a significant project-level regional air quality impact in an area that is in nonattainment contributes to the cumulative impact. Cumulative projects within the local area include new development and general growth within the project area. The greatest source of emissions in the SoCAB is mobile sources. Due to the extent of the area potentially impacted by cumulative project emissions (i.e., the SoCAB), SCAQMD considers a project cumulatively significant when project-related emissions exceed the SCAQMD regional emissions thresholds shown in Table 5.2-4.

The SoCAB is designated nonattainment for O_3 and $PM_{2.5}$ under the California and National AAQS, and nonattainment for PM_{10} under the California AAQS (CARB 2015).[7] Construction of cumulative projects would further degrade the regional and local air quality. However, implementation of SCAQMD regulations and mitigation for related projects would reduce cumulative impacts. Construction of the project would not result in emissions in excess of the SCAQMD regional emissions thresholds.

For operational air quality emissions, any project that does not exceed or can be mitigated to less than the daily regional threshold values is not considered by SCAQMD to be a substantial source of air pollution and does not add significantly to a cumulative impact. Operation of the project would not result in emissions in excess of the SCAQMD regional emissions thresholds. No significant cumulative impacts were identified with regard to CO hotspots.

In consideration of the preceding factors, the project's contribution to cumulative air quality impacts would be less than significant, and project impacts would not be cumulatively considerable.

5.2.5 Existing Regulations and Standard Conditions

State

- Clean Car Standards: Pavley (AB 1493)
- California Advanced Clean Cars CARB (13 CCR 1960)
- Low-Emission Vehicle Program: LEV III (13 CCR 1961.2, 1961.3)
- Statewide Retail Provider Emissions Performance Standards (SB 1368)
- Airborne Toxics Control Measure to Limit School Bus Idling and Idling at Schools (13 CCR 2480)
- Airborne Toxic Control Measure to Limit Diesel-Fuel Commercial Vehicle Idling (13 CCR 2485)
- In-Use Off-Road Diesel Idling Restriction (13 CCR 2449)
- Building Energy Efficiency Standards (Title 24, Part 6)

[7] CARB approved the SCAQMD's request to redesignate the SoCAB from serious nonattainment for PM_{10} to attainment for PM_{10} under the National AAQS, because the SoCAB did not violate federal 24-hour PM_{10} standards from 2004 to 2007. In June 2013, the EPA approved the State of California's request, effective on July 26, 2013.

- California Green Building Code (Title 24, Part 11)
- Appliance Energy Efficiency Standards (Title 20)

SCAQMD

- SCAQMD Rule 201: Permit to Construct
- SCAQMD Rule 402: Nuisance Odors
- SCAQMD Rule 403: Fugitive Dust
- SCAQMD Rule 1113: Architectural Coatings
- SCAQMD Rule 1186: Street Sweeping
- SCAQMD Rule 1403: Asbestos Emissions from Demolition/Renovation Activities

5.2.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, Impacts 5.2-1, 5.2-2, 5.2-3, 5.2-4, and 5.2-5 would be less than significant.

5.2.7 Mitigation Measures

No mitigation measures are required.

5.2.8 Level of Significance After Mitigation

Impacts would be less than significant.

5.2.9 References

Bay Area Air Quality Management District (BAAQMD). 2011. California Environmental Quality Act Air Quality Guidelines.

California Air Pollution Control Officers Association (CAPCOA). 2009, July. Health Risk Assessments for Proposed Land Use Projects.

———. 2016. California Emissions Estimator Model (CalEEMod). Version 2016.3.1. Prepared by: BREEZE Software, A Division of Trinity Consultants in collaboration with South Coast Air Quality Management District and the California Air Districts.

California Air Resources Board (CARB). 1998, April 22. The Report on Diesel Exhaust. http://www.arb.ca.gov/toxics/dieseltac/de-fnds.htm.

———. 1999, December. Final Staff Report: Update to the Toxic Air Contaminant List.

———. 2005, May. Air Quality and Land Use Handbook: A Community Health Perspective.

5. Environmental Analysis
AIR QUALITY

———. 2015. December. Area Designations Maps/State and National. http://www.arb.ca.gov/desig/desig.htm.

———. 2016a, May 4. Ambient Air Quality Standards. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

———. 2016b. Air Pollution Data Monitoring Cards (2011, 2012, 2013, 2014, and 2015), Accessed November 14, 2016, http://www.arb.ca.gov/adam/topfour/topfour1.php.

California Department of Transportation (Caltrans). 1997, December. Transportation Project-Level Carbon Monoxide Protocol. UCD-ITS-RR-97-21. Prepared by Institute of Transportation Studies, University of California, Davis.

Office of Environmental Health Hazard Assessment (OEHHA). 2015, February. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf.

South Coast Air Quality Management District (SCAQMD). 1993. California Environmental Quality Act Air Quality Handbook.

———. 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. http://www.aqmd.gov/home/library/documents-support-material/planning-guidance/guidance-document.

———. 2006, October. Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds.

———. 2008a, July. Final Localized Significance Threshold Methodology.

———. 2008b, September. Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES III). http://www.aqmd.gov/home/library/air-quality-data-studies/health-studies/mates-iii.

———. 2011. Fact Sheet for Applying CalEEMod to Localized Significance Thresholds.

———. 2012, May 4. Revised Draft: 2012 Lead State Implementation Plan, Los Angeles County. http://www.aqmd.gov/aqmp/Lead_SIP/RvsdDraftLeadSIP.pdf.

———. 2013, February. 2012 Final Air Quality Management Plan. http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan.

———. 2015a, May. Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES IV) Final Report. http://www.aqmd.gov/docs/default-source/air-quality/air-toxic-studies/mates-iv/mates-iv-final-draft-report-4-1-15.pdf?sfvrsn=7.

———. 2015b, March (revised). SCAQMD Air Quality Significance Thresholds. http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2.

———. 2015c. Health Effects of Air Pollution. http://www.aqmd.gov/home/library/public-information/publications.

———. 2015d, October. "Blueprint for Clean Air: 2016 AQMP White Paper." Air Quality Management Plan Advisory Group: 2016 AQMP (webpage). http://www.aqmd.gov/home/about/groups-committees/aqmp-advisory-group/2016-aqmp-white-papers.

———. 2015e. Air Quality Analysis Handbook. Updates to CEQA Air Quality Handbook. http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook.

———. 2016, October. Revised Draft 2016 Air Quality Management Plan. http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/reviseddraft2016AQMP.

Southern California Association of Governments (SCAG). 2012, April. 2012–2035 Regional Transportation Plan / Sustainable Communities Strategy. http://rtpscs.scag.ca.gov/Pages/default.aspx.

United States Environmental Protection Agency (USEPA). 2016. Criteria Air Pollutants. https://www.epa.gov/criteria-air-pollutants.

Western Regional Climate Center (WRCC). 2016. Western U.S. Climate Summaries: Newport Beach Harbor Monitoring Station (Station ID No. 046175). Accessed November 14, 2016. http://www.wrcc.dri.edu/summary/Climsmsca.html.

5. Environmental Analysis
AIR QUALITY

This page intentionally left blank.

5.3 CULTURAL RESOURCES

Cultural resources comprise paleontological, archaeological, and historical resources. Paleontological resources are the fossilized remains of plants and animals. Archaeology is the branch of paleontology that studies human artifacts, such as places, objects, and settlements that reflect group or individual religious, cultural, or everyday activities. Historical resources include sites, structures, objects, or places that are at least 50 years old and are significant for their engineering, architecture, cultural use or association, etc. This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for implementation of the proposed project to impact cultural resources in the City of Newport Beach. The analysis in this section is based, in part, upon the following information:

- *Paleontological Records Search for the Proposed Corona del Mar High School Sports Field Project, in the City of Newport Beach, Orange County*, Natural History Museum, December 4, 2015.
- *Archaeological Records Search, Corona del Mar High School, Orange County*, McKenna et al., July 10, 2010.

Complete copies of these records search results are included in Appendix E, *Cultural Records Search Result*, to this Draft EIR.

5.3.1 Environmental Setting

5.3.1.1 REGULATORY BACKGROUND

Archaeological Resources Protection Act

The Archaeological Resources Protection Act of 1979 regulates the protection of archaeological resources and sites on federal and Indian lands.

Native American Graves Protection and Repatriation Act

NAGPRA is a federal law passed in 1990 that mandates museums and federal agencies to return certain Native American cultural items—such as human remains, funerary objects, sacred objects, or objects of cultural patrimony—to lineal descendants or culturally affiliated Indian tribes.

California Public Resources Code

Archaeological, paleontological, and historical sites are protected under a wide variety of state policies and regulations in the California Public Resources Code (PRC). In addition, cultural and paleontological resources are recognized as nonrenewable resources and receive protection under the PRC and CEQA.

PRC Section 5097.5 states that no person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over the lands. Violation of this section is a misdemeanor.

5. Environmental Analysis
CULTURAL RESOURCES

PRC Sections 5097.9 to 5097.991 provide protection to Native American historical and cultural resources and sacred sites; identify the powers and duties of the Native American Heritage Commission; require that descendants be notified when Native American human remains are discovered; and provide for treatment and disposition of human remains and associated grave goods.

Assembly Bill 52

Assembly Bill 52 (AB 52), the Native American Historic Resource Protection Act, is applicable to CEQA projects where either the Notice of Preparation or Notice of Intent is filed after July 1, 2015. AB 52 requires meaningful consultation with California Native American tribes on potential impacts to tribal cultural resources, as defined in PRC Section 21074. A tribe must submit a written request to the relevant lead agency if it wishes to be notified of projects within its traditionally and culturally affiliated area. The lead agency must provide written, formal notification to the tribes that have requested it within 14 days of determining that a project application is complete, or deciding to undertake a project. The tribe must respond to the lead agency within 30 days of receipt of the notification if it wishes to engage in consultation on the project, and the lead agency must being the consultation process within 30 days of receiving the request for consultation. Consultation concludes when either 1) the parties agree to mitigation measures to avoid a significant effect, if one exists, on a tribal cultural resource, or 2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. AB 52 also addresses confidentiality during tribal consultation per PRC Section 21082.3(c).

The District received a request from Juaneño Band of Mission Indians – Acjachemen Nation to be notified of projects in which the District is the lead agency under CEQA. The Juaneño Band of Mission Indians – Acjachemen Nation was notified of the proposed project on October 22, 2015, and they responded by stating that they have no comments at this point (Perry 2015). Therefore, the District is in compliance with AB 52, and no additional discussion concerning AB 52 has been provided in this section.

5.3.1.2 NATURAL SETTING

An archaeological records search was conducted through the South Central Coastal Information Center for the project site and a 0.5-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.

Archaeological Resources

Archaeological resources are the physical remains of past human activities and can be either prehistoric or historic. Archaeological sites contain significant evidence of human activity. Generally a site is defined by a significant accumulation or presence of food remains, tools and waste from their manufacture, concentrations or alignments of stones, modification of rock surfaces, unusual discoloration or accumulation of soil, and/or human skeletal remains. A total of 13 archaeological sites were identified within 0.5 mile of the CdM campus. These sites are all prehistoric sites dominated by the presence of midden[1] deposits, as described below:

- **CA-ORA-53** was recorded by Briggs in 1949 and identified as a shell midden with evidence of disturbances.
- **CA-ORA-63** was recorded by Nelson as a prehistoric campsite (two loci). No formal recording was completed.
- **CA-ORA-95** was recorded by Chartkoff in 1966 and identified as a shell midden with some lithic flakes. Nelson also reported that grading for a residence destroyed the majority of the site.
- **CA-ORA-96** was also recorded by Chartkoff in 1966 and identified as a midden deposit with evidence of flakes. This site was also mostly destroyed by the time it was recorded.
- **CA-ORA-97** was recorded by Chartkoff (1966) and defined as a midden with scattered flakes. The development of an apartment complex destroyed much of this site.
- **CA-ORA-102** was recorded by Waldeck in 1948 and identified as a village site on a terrace/bluff. The site was cross-referenced as Site OR-11 and on Irvine Company property.
- **CA-ORA-150** was recorded by Hafner on behalf of the Pacific Coast Archaeological Survey (1965) and described as a shell midden deposit with an extensive scatter of artifacts. Hafner emphasized that this site is one of six located on the bluff above Big Canyon.
- **CA-ORA-151** was also recorded by Hafner (1965) for the Pacific Coast Archaeological Survey. As noted above, this shell midden is one of six sites on the bluff above Big Canyon.
- **CA-ORA-152**, also recorded by Hafner (1965) is a third midden deposit site on the bluff above Big Canyon.
- **CA-ORA-153**, recorded by Hafner (1965) is the fourth midden deposit above Big Canyon.
- **CA-ORA-154**, recorded by Hafner (1965) as the fifth midden deposit identified on the bluff above Big Canyon.
- **CA-ORA-155**, recorded by Hafner (1965), was identified as a small midden deposit on the Back Bay bluff.
- **CA-ORA-256** was recorded by Chace in 1965 and described as a small scatter of shell at the mouth of Big Canyon. No artifacts were observed.

[1] Also known as kitchen midden or shell heap, a midden is a mound or deposit containing shells, animal bones, and other refuse that indicates the site of a human settlement (Wikipedia).

5. Environmental Analysis
CULTURAL RESOURCES

Paleontological Resources

Paleontological resources are the fossilized remains of organisms from prehistoric environments found in geologic strata. These are valued for the information they yield about the history of the earth and its past ecological settings. There are two types of resources: vertebrate and invertebrate. These resources are found in geologic strata conducive to their preservation, typically sedimentary formations. Paleontological sites are areas that show evidence of prehuman activity. Often they are simply small outcroppings visible on the surface or sites encountered during grading. While the sites are important indications, it is the geologic formations that are the most important, since they may contain important fossils. Areas are considered potentially sensitive for the presence of paleontological resources based on the underlying geologic formation.

The project site is not included in the Newport Beach General Plan's paleontological resources site.

The project site and its vicinity have surface deposits that consist of older Quaternary Alluvium and terrace deposits. Paleontological resources that have been found in these deposits are described below.

- LACM 4422 and 6475: Vertebrate fossil localities that produced marine and terrestrial fossil specimens of dusky shark, *Carcharhinus obscurus*; hammerhead sharks, *Sphyrna lewini* and *Sphyrna zygaena*; eagle ray, *Myliobatiformes*; Pacific hake, *Merluccius productus*; frog, *Anura*; pond turtle, *Clemmys*; mammoth, *Mammuthus*; seal lion, *Otariidae*; pocket gopher, *Thomomys*; kangaroo rat, *Dipodomys*; toothed whale, *Odontoceti*; horse, *Equus*; and birds.

- LACM 6801: Vertebrate fossil locality that produced a specimen of fossil tapir, *Tapirus merriami*.

- LACM 1066: Vertebrate fossil locality that produced extensive fossil fauna.

Deposits that could occur at depth on the slopes around the margins of the bluff are older sedimentary deposits, the marine Pliocene Niguel Formation, the marine late Miocene Capistrano Formation, and the marine middle to late Miocene Monterey Formation. Paleontological resources that have been found in these deposits are described below.

- LACM 3802: The Niguel Formation produced fossil specimens of white shark, *Carcharodon sulcidens*, and bonito shark, *Isurus oxyrhynchus*, from beds exposed by bulldozer activities.

- LACM 580: The younger marine late Miocene Capistrano Formation produced a specimen of a fossil sperm whale, *Physeteridae*.

- LACM 1160 and 7139: The Miocene Monterey Formation produced fossil bony fish, *Osteichthyes*, and baleen whales, *Mysticeti*.

In addition, a number of vertebrate fossil localities were found in Monterey Formation, primarily from farther east in the hills south of I-405 and on both sides of I-5.

5.3.2 Thresholds of Significance

CEQA Guidelines Section 15064.5 provides direction on determining significance of impacts to archaeological and historical resources. Generally, a resource shall be considered "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Is associated the with lives of persons important in our past;
- 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; or
- Has yielded, or may be likely to yield, information important in prehistory or history. (PRC § 5024.1; 14 CCR § 4852)

The fact that a resource is not listed in the California Register of Historical Resources, not determined to be eligible for listing, or not included in a local register of historical resources does not preclude a lead agency from determining that it may be a historical resource.

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

C-1 Cause a substantial adverse change in the significance of an historical resource pursuant to Section 15064.5.

C-2 Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.

C-3 Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

C-4 Disturb any human remains, including those interred outside of formal cemeteries.

C-5 Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074 (regarding AB 52 compliance).

The Initial Study, included as Appendix A, substantiates that impacts associated with the following thresholds would be less than significant:

- Threshold C-1
- Threshold C-4
- Threshold C-5

These impacts will not be addressed in the following analysis.

5.3.3 Environmental Impacts

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.3-1: Development of the project could adversely impact archaeological resources. [Threshold C-2]

Impact Analysis: Thirteen archaeological sites have been identified within one-half mile of the project site, therefore the project area could be considered sensitive for archaeological resources. Although the project site is part of an existing CdM campus, considering the sensitive nature of the project area, disturbance of previously undisturbed soils within the project site could result in discovery of archaeological resources. Therefore, a mitigation measure has been incorporated to ensure that proper procedures are followed during grading and that discovery of archaeological resources is handled in accordance with the CEQA Statute, Section 21083.2.

> "[U]nique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
>
> (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
>
> (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.
>
> …"[N]onunique archaeological resource" means an archaeological artifact, object, or site which does not meet the criteria [listed above]. A nonunique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects. (PRC §§ 21083.2g–h)

The project site is considered sensitive for subsurface archaeological resources, and archaeological resources monitoring during grading would be necessary to ensure that impacts are minimized.

Impact 5.3-2: The proposed project could adversely impact paleontological resources. [Threshold C-3]

Impact Analysis: According to the paleontological records search conducted for the CdM campus, the project site is in the area of older Quaternary Alluvium and terrace deposits, and older sedimentary deposits could occur at depth. A number of vertebrate fossils have been identified from these deposits in the project vicinity. Therefore, excavation beyond fill materials into the underlying older Quaternary Alluvium and terrace deposits and older sedimentary deposits could uncover fossil vertebrate remains. A mitigation measure has been incorporated to ensure that impacts to subsurface paleontological resources are reduced to a less than significant level.

5.3.4 Cumulative Impacts

The area considered for cumulative impacts to cultural resources is the City of Newport Beach. Other projects in the city could involve actions that damage archaeological and/or paleontological resources specific to those project sites. However, other projects would also be subject to CEQA review and regulatory requirements, including archaeological and paleontological assessment. Where significant or potentially significant impacts are identified, implementation of all feasible mitigation measures would be required to reduce impacts, as with the proposed project. Therefore, site-specific impacts would be mitigated; provided that individual impacts are reduced to a less than significant level, the cumulative impacts would also not be considerable and no further mitigation would be necessary.

5.3.5 Existing Regulations and Standard Conditions

Federal

- US Code, Title 16, Sections 470 et seq.: National Historic Preservation Act
- US Code, Title 16, Sections 470aa et seq.: Archaeological Resources Protection Act
- US Code, Title 25, Sections 3001 et seq.: Native American Graves Protection and Repatriation Act

State

- PRC Sections 5020–5029.5: Authorized State Historical Resources Commission.
- PRC Sections 5079–5079.65: Authorized Office of Historic Preservation.
- PRC Sections 5097.9–5097.99: Protections for Native American historical and cultural resources and sacred sites; authorized Native American Heritage Commission; prescribes responsibilities respecting discoveries of Native American human remains.
- PRC Sections 21073 et seq. (AB 52): Requires analysis of impacts to tribal cultural resources under CEQA.

5.3.6 Level of Significance Before Mitigation

Without mitigation, these impacts would be **potentially significant**:

- Impact 5.3-1 The proposed project could adversely impact archaeological resources.
- Impact 5.3-2 The proposed project would adversely impact paleontological resources.

5.3.7 Mitigation Measures

Impact 5.3-1

CUL-1 Prior to the issuance of the first grading permit and/or action that would permit disturbance to the project site, the Newport-Mesa Unified School District shall retain a qualified archaeological monitor to observe grading activities and to salvage and catalogue archaeological resources, including tribal resources, as necessary. The qualified monitor shall be invited to be present at the pregrading conference; shall establish procedures for archaeological resource surveillance; and shall establish, in cooperation with the construction contractor, procedures for temporary halting or redirecting work to permit the sampling, identification, and evaluation of the artifacts, as appropriate.

Should archaeological resources, including tribal resources, be found during ground-disturbing activities, the qualified monitor shall first determine whether the resource is a "unique archaeological resource" pursuant to Section 21083.2(g) of the California Public Resources Code or a " historical resource" pursuant to Section 15064.5(a) of the State CEQA Guidelines (14 California Code of Regulations). Once the determination is made pursuant to CEQA Guidelines Section 21083.2, the appropriate actions shall be taken in appropriate sections of the regulations to ensure that impacts are reduced to a less than significant level.

Impact 5.3-2

CUL-2 Prior to the beginning of ground disturbances, the Newport-Mesa Unified School District shall retain a qualified paleontologist to monitor ground-disturbing activities that occur in older Quaternary Alluvium and terrace deposits and older sedimentary deposits. 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.

5.3.8 Level of Significance After Mitigation

The mitigation measures would reduce potential impacts to cultural resources to a level that is less than significant. Therefore, no significant unavoidable adverse impacts to cultural resources have been identified.

5.3.9 References

Natural History Museum. 2015, December 4. Paleontological Records Search for the Proposed Corona del Mar High School Sports Field Project, in the City of Newport Beach, Orange County.

McKenna et al. 2010, July 10. Archaeological Records Search, Corona del Mar High School, Orange County.

5.4 GREENHOUSE GAS EMISSIONS

This section of the Draft Environmental Impact Report (Draft EIR) evaluates the potential for the implementation of the proposed project to cumulatively contribute to greenhouse gas (GHG) emissions. Because no single project is large enough to result in a measurable increase in global concentrations of GHG emissions, climate change impacts of a project are considered on a cumulative basis. The analysis in this section is based on buildout of the proposed project, as modeled using the California Emissions Estimator Model (CalEEMod) and trip generation provided by IBI Group (see Appendix G1 to this DEIR). The GHG emissions modeling for construction and operational phases are included in Appendix D of this DEIR.

5.4.1 Environmental Setting

5.4.1.1 GREENHOUSE GASES AND CLIMATE CHANGE

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHGs, to 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 ozone (O_3)—that are the likely cause of an increase in global average temperatures observed within 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 (IPCC 2001).[1,2] The major GHGs 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 the combustion of fossil fuels and solid waste.

[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, because it is considered 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 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 2014b). However, state and national GHG inventories do not include black carbon yet due to ongoing work resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

5. Environmental Analysis
GREENHOUSE GAS EMISSIONS

- **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 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 the ozone layer. These gases 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 hydrofluorocarbons (HFCs), to 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 GWP.
  - ***Sulfur Hexafluoride (SF_6)*** is a colorless gas soluble in alcohol and ether, and 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 they are ozone-depleting substances, they are less potent than CFCs. They have been introduced as temporary replacements for CFCs.
  - ***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 1995; USEPA 2015)

GHGs are dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Some GHGs have a stronger greenhouse effect than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 5.4-1, *GHG Emissions and Their Relative Global Warming Potential Compared to CO_2*. 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 210 MT of CO_2.[3]

[3] CO_2-equivalence is used to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. The global warming potential of a GHG is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere.

Table 5.4-1 GHG Emissions and Their Relative Global Warming Potential Compared to CO_2

GHGs	Second Assessment Report Atmospheric Lifetime (Years)	Fourth Assessment Report Atmospheric Lifetime (Years)	Second Assessment Report Global Warming Potential Relative to CO_2[1]	Fourth Assessment Report Global Warming Potential Relative to CO_2[1]
Carbon Dioxide (CO_2)	50 to 200	50 to 200	1	1
Methane[2] (CH_4)	12 (±3)	12	21	25
Nitrous Oxide (N_2O)	120	114	310	298
Hydrofluorocarbons:				
HFC-23	264	270	11,700	14,800
HFC-32	5.6	4.9	650	675
HFC-125	32.6	29	2,800	3,500
HFC-134a	14.6	14	1,300	1,430
HFC-143a	48.3	52	3,800	4,470
HFC-152a	1.5	1.4	140	124
HFC-227ea	36.5	34.2	2,900	3,220
HFC-236fa	209	240	6,300	9,810
HFC-4310mee	17.1	15.9	1,300	1,030
Perfluoromethane: CF_4	50,000	50,000	6,500	7,390
Perfluoroethane: C_2F_6	10,000	10,000	9,200	12,200
Perfluorobutane: C_4F_{10}	2,600	NA	7,000	8,860
Perfluoro-2-methylpentane: C_6F_{14}	3,200	NA	7,400	9,300
Sulfur Hexafluoride (SF_6)	3,200	NA	23,900	22,800

Source: IPCC 1995; IPCC 2007.
Note: The IPCC has published updated GWP values in its Fifth Assessment Report (2013) that reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO_2. (Radiative forcing is the difference of energy from sunlight received by the earth and radiated back into space.) However, AR4 GWP values are used by the South Coast Air Quality Management District to maintain consistency with statewide GHG emissions modeling. In addition, the 2014 Scoping Plan Update was based on 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 GHG Sources and Relative Contribution

California is the 20th largest GHG emitter in the world and the 2nd largest emitter of GHG emissions in the United States, surpassed only by Texas (CARB 2014a). However, California also has over 12 million more people than Texas. Because of more stringent air emission regulations, in 2001, California ranked fourth lowest in carbon emissions per capita and fifth lowest among states in CO_2 emissions from fossil fuel consumption per unit of Gross State Product (total economic output of goods and services)(CEC 2006a).

In 2016, the statewide GHG emissions inventory was updated for 2000-to-2014 emissions using the AR4 GWPs.[4] Based on these GWPs, California produced 442 million metric tons (MMT) of CO_2e GHG emissions in 2014. California's transportation sector remains the single largest generator of GHG emissions,

[4] 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).

producing 36.1 percent of the state's total emissions; industrial sector emissions made up 21.1 percent, and electric power generation made up 20.0 percent. Other major sectors of GHG emissions include commercial and residential (8.7 percent), agriculture (8.2 percent), high-GWP GHGs (3.9 percent), and recycling and waste (2.0 percent) (CARB 2016a).

Human Influence on Climate Change

For approximately 1,000 years before the Industrial Revolution, the amount of GHGs in the atmosphere remained relatively constant. During the 20th century, however, scientists observed a rapid change in the climate and the quantity of climate change pollutants in the Earth's atmosphere that is attributable to human activities. The amount of CO_2 in the atmosphere has increased by more than 35 percent since preindustrial times and has increased at an average rate of 1.4 parts per million per year since 1960, mainly due to combustion of fossil fuels and deforestation (IPCC 2007). These recent changes in the quantity and concentration of climate change pollutants far exceed the extremes of the ice ages, and the global mean temperature is warming at a rate that cannot be explained by natural causes alone. Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change pollutants (CAT 2006). In the past, gradual changes in the earth's temperature changed the distribution of species, availability of water, etc. However, human activities are accelerating this process so that environmental impacts associated with climate change no longer occur in a geologic time frame but within a human lifetime (IPCC 2007).

The projections of the expected increase in global surface temperatures vary; the environmental consequences of gradual changes in the Earth's temperature are similarly hard to predict. Projections of climate change depend heavily upon future human activity. Therefore, climate models are based on different emission scenarios that account for historical trends in emissions and on observations of the climate record that assess the human influence of the trend and projections for extreme weather events. Climate-change scenarios are affected by varying degrees of uncertainty—for example, on the magnitude of the trends for:

- Warmer and fewer cold days and nights over most land areas.
- Warmer and more frequent hot days and nights over most land areas.
- An increase in frequency of warm spells/heat waves over most land areas.
- An increase in frequency of heavy precipitation events (or proportion of total rainfall from heavy falls) over most areas.
- Areas affected by drought increases.
- Intense tropical cyclone activity increases.
- Increased incidence of extreme high sea level (excluding tsunamis).

Potential Climate Change Impacts for California

Observed changes over the last several decades across the western United States reveal clear signs of climate change. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and warming has been greatest in the Sierra Nevada. By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase from 4.1 to 8.6°F, depending on emissions levels (CCCC 2012).

In California and western North America, observations of the climate have shown: 1) a trend toward warmer winter and spring temperatures; 2) a smaller fraction of precipitation falling as snow; 3) a decrease in the amount of spring snow accumulation in the lower and middle elevation mountain zones; 4) a shift in the timing of snowmelt of 5 to 30 days earlier in the spring; and 5) a similar shift (5 to 30 days earlier) in the timing of spring flower blooms (CAT 2006). According to the California Climate Action Team—a committee of state agency secretaries and the heads of agencies, boards, and departments, led by the Secretary of the California Environmental Protection Agency—even if actions could be taken to immediately curtail climate change emissions, the potency of emissions that have already built up, their long atmospheric lifetimes (see Table 5.4-1), and the inertia of the Earth's climate system could produce as much as 0.6°C (1.1°F) of additional warming. Consequently, some impacts from climate change are now considered unavoidable. Global climate change risks to California are shown in Table 5.4-2, *Summary of GHG Emissions Risks to California,* and include impacts to public health, water resources, agriculture, coastal sea level, forest and biological resources, and energy. Specific climate change impacts that could affect the project include:

- **Water Resources Impacts.** By late this century, all projections show drying, and half of the projections suggest 30-year average precipitation will decline by more than 10 percent below the historical average. This drying trend is caused by an apparent decline in the frequency of rain and snowfall. Even in projections with relatively small or no declines in precipitation, central and southern parts of the state can be expected to be drier from the warming effects alone—the spring snowpack will melt sooner, and the moisture in soils will evaporate during long dry summer months (CCCC 2012).

- **Wildfire Risks.** Earlier snowmelt, higher temperatures, and longer dry periods over a longer fire season will directly increase wildfire risk. Indirectly, wildfire risk will also be influenced by potential climate-related changes in vegetation and ignition potential from lightning. Human activities will continue to be the biggest factor in ignition risk. The number of large fires statewide is estimated to increase from 58 percent to 128 percent above historical levels by 2085. Under the same emissions scenario, estimated burned area will increase by 57 percent to 169 percent, depending on location (CCCC 2012).

- **Health Impacts.** Many of the gravest threats to public health in California stem from the increase of extreme conditions, principally more frequent, more intense, and longer heat waves. Particular concern centers on the increasing tendency for multiple hot days in succession and heat waves occurring simultaneously in several regions throughout the state. Public health could also be affected by climate change impacts on air quality, food production, the amount and quality of water supplies, energy pricing and availability, and the spread of infectious diseases. Higher temperatures also increase ground-level

5. Environmental Analysis
GREENHOUSE GAS EMISSIONS

ozone levels. Furthermore, wildfires can increase particulate air pollution in the major air basins of California (CCCC 2012).

- **Increase Energy Demand.** Increases in average temperature and higher frequency of extreme heat events combined with new residential development across the state will drive up the demand for cooling in the increasingly hot and longer summer season and decrease demand for heating in the cooler season. Warmer, drier summers also increase system losses at natural gas plants (reduced efficiency in the electricity generation process at higher temperatures) and hydropower plants (lower reservoir levels). Transmission of electricity will also be affected by climate change. Transmission lines lose 7 percent to 8 percent of transmitting capacity in high temperatures while needing to transport greater loads. This means that more electricity needs to be produced to make up for the loss in capacity and the growing demand (CCCC 2012).

Table 5.4-2 Summary of GHG Emissions Risks to California

Impact Category	Potential Risk
Public Health Impacts	• Heat waves will be more frequent, hotter, and longer • Fewer extremely cold nights • Poor air quality made worse • Higher temperatures increase ground-level ozone levels
Water Resources Impacts	• Decreasing Sierra Nevada snow pack • Challenges in securing adequate water supply • Potential reduction in hydropower • Loss of winter recreation
Agricultural Impacts	• Increasing temperature • Increasing threats from pests and pathogens • Expanded ranges of agricultural weeds • Declining productivity • Irregular blooms and harvests
Coastal Sea Level Impacts	• Accelerated sea level rise • Increasing coastal floods • Shrinking beaches • Worsened impacts on infrastructure
Forest and Biological Resource Impacts	• Increased risk and severity of wildfires • Lengthening of the wildfire season • Movement of forest areas • Conversion of forest to grassland • Declining forest productivity • Increasing threats from pest and pathogens • Shifting vegetation and species distribution • Altered timing of migration and mating habits • Loss of sensitive or slow-moving species
Energy Demand Impacts	• Potential reduction in hydropower • Increased energy demand

Sources: CEC 2006b; CEC 2009; CCCC 2012.

5.4.1.2 REGULATORY FRAMEWORK

This section describes the federal, state, and local regulations applicable to GHG emissions.

Federal Laws

The U.S. Environmental Protection Agency (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 did not themselves impose any emission reduction requirements, but allowed 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 Air Quality Management District (SCAQMD) 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_2e 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.

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 stationary sources such as power plants, refineries, and other large sources of emissions. Pursuant to the President's 2013 Climate Action Plan, the EPA will be directed to also develop regulations for existing stationary sources.

5. Environmental Analysis
GREENHOUSE GAS EMISSIONS

State Laws

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in Executive Order S-03-05, Executive Order B-30-15, Assembly Bill 32 (AB 32), Senate Bill 32 (SB 32), and Senate Bill 375 (SB 375).

Executive Order S-03-05

Executive Order S-03-05, signed June 1, 2005, 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, the Global Warming Solutions Act. 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. AB 32 directed CARB to adopt discrete early action measures to reduce GHG emissions and outline additional reduction measures to meet the 2020 target. 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.

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. The 2020 target requires a total emissions reduction of 169 $MMTCO_2e$, 28.5 percent from the projected emissions of the business-as-usual (BAU) scenario for the year 2020 (i.e., 28.5 percent of 596 $MMTCO_2e$) (CARB 2008).[5]

Key elements of CARB's GHG reduction plan that may be applicable to the project include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards (adopted and cycle updates in progress).

[5] CARB defines BAU in its Scoping Plan as emissions levels that would occur if California continued to grow and add new GHG emissions but did not adopt any measures to reduce emissions. Projections for each emission-generating sector were compiled and used to estimate emissions for 2020 based on 2002–2004 emissions intensities. Under CARB's definition of BAU, new growth is assumed to have the same carbon intensities as was typical from 2002 through 2004.

- Achieving a mix of 33 percent for energy generation from renewable sources (anticipated by 2020).
- A California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system for large stationary sources (adopted 2011).
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets (several Sustainable Communities Strategies have been adopted).
- Adopting and implementing measures pursuant to state laws and policies, including California's clean car standards (amendments to the Pavley Standards adopted 2009; Advanced Clean Car standard adopted 2012), goods movement measures, and the Low Carbon Fuel Standard (adopted 2009).
- Creating target fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation (in progress).

Table 5.4-3, *Scoping Plan GHG Reduction Measures and Reductions toward 2020 Target*, shows the proposed reductions from regulations and programs outlined in the 2008 Scoping Plan. Although local government operations were not accounted for in achieving the 2020 emissions reduction, CARB estimates that land use changes implemented by local governments that integrate jobs, housing, and services result in a reduction of 5 $MMTCO_2e$, which is approximately 3 percent of the 2020 GHG emissions reduction goal. In recognition of the critical role that local governments play in the successful implementation of AB 32, CARB is recommending GHG reduction goals of 15 percent of today's levels by 2020 to ensure that municipal and community-wide emissions match the state's reduction target.[6] Measures that local governments take to support shifts in land use patterns are anticipated to emphasize compact, low-impact growth over development in greenfields, resulting in fewer vehicle miles traveled (CARB 2008).

[6] The Scoping Plan references a goal for local governments to reduce community GHG emissions by 15 percent from current (interpreted as 2008) levels by 2020, but it does not rely on local GHG reduction targets established by local governments to meet the state's GHG reduction target of AB 32.

5. Environmental Analysis
GREENHOUSE GAS EMISSIONS

Table 5.4-3 Scoping Plan GHG Reduction Measures and Reductions toward 2020 Target

Recommended Reduction Measures	Reductions Counted toward 2020 Target of 169 MMT CO_2e	Percentage of Statewide 2020 Target
Cap and Trade Program and Associated Measures		
California Light-Duty Vehicle GHG Standards	31.7	19%
Energy Efficiency	26.3	16%
Renewable Portfolio Standard (33 percent by 2020)	21.3	13%
Low Carbon Fuel Standard	15	9%
Regional Transportation-Related GHG Targets[1]	5	3%
Vehicle Efficiency Measures	4.5	3%
Goods Movement	3.7	2%
Million Solar Roofs	2.1	1%
Medium/Heavy Duty Vehicles	1.4	1%
High Speed Rail	1.0	1%
Industrial Measures	0.3	0%
Additional Reduction Necessary to Achieve Cap	34.4	20%
Total Cap and Trade Program Reductions	**146.7**	**87%**
Uncapped Sources/Sectors Measures		
High Global Warming Potential Gas Measures	20.2	12%
Sustainable Forests	5	3%
Industrial Measures (for sources not covered under cap and trade program)	1.1	1%
Recycling and Waste (landfill methane capture)	1	1%
Total Uncapped Sources/Sectors Reductions	**27.3**	**16%**
Total Reductions Counted toward 2020 Target	**174**	**100%**
Other Recommended Measures – Not Counted toward 2020 Target		
State Government Operations	1.0 to 2.0	1%
Local Government Operations[2]	To Be Determined	NA
Green Buildings	26	15%
Recycling and Waste	9	5%
Water Sector Measures	4.8	3%
Methane Capture at Large Dairies	1	1%
Total Other Recommended Measures – Not Counted toward 2020 Target	**42.8**	**NA**

Source: CARB 2008.
Notes: The percentages in the right-hand column add up to more than 100 percent because the emissions reduction goal is 169 $MMTCO_2e$ and the Scoping Plan identifies 174 $MTCO_2e$ of emissions reductions strategies, which are based on the IPCC's Second Assessment Report GWPs.
$MMTCO_2e$: million metric tons of CO_2e
[1] Reductions represent an estimate of what may be achieved from local land use changes. It is not the SB 375 regional target.
[2] According to the Measure Documentation Supplement to the Scoping Plan, local government actions and targets are anticipated to reduce vehicle miles by approximately 2 percent through land use planning, resulting in a potential GHG reduction of 2 million metric tons of CO_2e (or approximately 1.2 percent of the GHG reduction target). However, these reductions were not included in the Scoping Plan reductions to achieve the 2020 target.

First Update to the Scoping Plan

CARB recently 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 defines CARB's climate change priorities for the next five years and lays the groundwork to reach post-2020 goals in

Executive Orders S-03-05 and B-16-2012. The update includes the latest scientific findings related to climate change and its impacts, including short-lived climate pollutants. The GHG target identified in the 2008 Scoping Plan is based on IPCC's GWPs identified in the Second and Third Assessment Reports (see Table 5.4-1).[7] IPCC's Fourth and Fifth Assessment Reports identified more recent GWP values based on the latest available science. CARB recalculated the 1990 GHG emission levels with the updated GWPs in AR4, 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 2014b). CARB projected that statewide BAU emissions in 2020 would be approximately 509 million $MTCO_2e$.[8] Therefore, to achieve the AB 32 target of 431 million $MTCO_2e$ (i.e., 1990 emissions levels) by 2020, the state would need to reduce emissions by 78 million $MTCO_2e$ compared to BAU conditions, a reduction of 15.3 percent from BAU in 2020 (CARB 2014b).[9] The data from the First Update to the Scoping Plan regarding GHG emissions and reductions needed to achieve the 1990 emissions target are shown in Table 5.4-4, *State BAU Forecast in the First Update to the Scoping Plan.*

Table 5.4-4 State BAU Forecast in the First Update to the Scoping Plan

Recommended Reduction Measures	2020 $MMTCO_2e$ – Fourth Assessment Report GWPs
AB 32 Baseline 2020 Forecast Emissions (2020 BAU) with Pavley I and the Renewable Electricity Standard (RPS)	539
AB 32 Baseline 2020 Forecast Emissions (2020 BAU)[1]	509
Expected Reductions from Sector-Based Measures	
Energy	25
Transportation	23
High-GWPs	5
Waste	2
Cap-and-Trade Reductions[2]	23
2020 Limit	431
Percent Reduction from BAU with Pavley I and RPS	20.0%
Percent Reduction from BAU without Pavley and RPS	15.3%

Source: CARB 2014b.
1 The total projected emissions in the 2020 BAU scenario accounts for reductions anticipated from Pavley I and the Renewable Electricity Standard (30 million $MTCO_2e$ total).
2 The cap-and-trade reductions depend on the emissions forecast.

The update highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals defined in the 2008 Scoping Plan. As identified in the Update to the Scoping Plan, California is on track to meeting the goals of AB 32. However, the Update to the Scoping Plan 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-

7 IPCC's Fourth and Fifth Assessment Reports identified more recent GWP values based on the latest available science. CARB recalculated the 1990 GHG emission levels with the updated GWPs in the Fourth Assessment Report, 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 2014b).

8 The BAU forecast includes GHG reductions from Pavley and the 33% Renewables Portfolio Standard.

9 If the GHG emissions reductions from Pavley I and the Renewable Electricity Standard are accounted for as part of the BAU scenario (30 million $MTCO_2e$ total), then the state would need to reduce emissions by 108 million $MTCO_2e$, which is a 20 percent reduction from BAU.

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 2014b).

According to the Update to the Scoping Plan, 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 2014b).

Executive Order B-30-15

Executive Order B-30-15, signed April 29, 2015, sets a goal of reducing GHG emissions within 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 Senate Bill 32 and Assembly Bill 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.

2030 Target Scoping Plan

The new Executive Order B-30-15 and SB 32 requires CARB to prepare another update to the Scoping Plan to address the 2030 target for the state. The 2030 Target Scoping Plan will address the new 2030 interim target to achieve a 40 percent reduction below 1990 levels by 2030. In June of 2016, CARB released "2030 Target Scoping Plan Update Concept Paper," which identifies potential scenarios focusing on different emissions sectors with and without the cap-and-trade program, which is currently in litigation (CARB 2016b). Under AB 197, CARB is directed to prioritize direct emissions control strategies, which would emphasize implementing direct emissions reductions from large stationary source emitters such as power plants and refineries and also from mobile sources. Release of the 2030 Target Scoping Plan that carries through the potential regulations and programs to achieve the 2030 target is anticipated in 2017.

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 (PM) 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. In April 2016, CARB adopted the "Proposed Short-Lived Climate Pollutant 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 2016c). In-use on-road rules are expected to reduce black carbon emissions from on-road sources by 80 percent between 2000 and 2020. SCAQMD 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 2016c). Additionally, SCAQMD Rule 445 limits installation of new fireplaces in the SoCAB.

Senate Bill 375

In 2008, Senate Bill 375 (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 vehicle miles traveled (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). SB 375 requires CARB to periodically update the targets, no later than every 8 years. CARB plans to propose updated targets for consideration in 2016, with the intent to make them effective in 2018. Sustainable communities strategies adopted in 2018 would be subject to the updated targets (CARB 2015).

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).

5. Environmental Analysis
GREENHOUSE GAS EMISSIONS

CARB is currently in the process of updating the next round of targets and methodology to comply with the requirement for updates every eight years. Considerations for the next round of targets include whether to change the nature or magnitude of the emissions reduction targets for each of the MPOs, and whether the target-setting methodology should account for advances in technologies that reduce emissions. Such changes in methodology would permit cities to account for emissions reductions from advances in cleaner fuels and vehicles and not only from land use and transportation planning strategies.

SCAG's 2016-2040 RTP/SCS

SB 375 requires the MPOs to prepare a sustainable communities strategy 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.

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 is 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 low carbon fuel standard (LCFS) for transportation fuels sold within 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 (SBX1-2). 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 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.

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 2013 (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

5. Environmental Analysis
GREENHOUSE GAS EMISSIONS

updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. On May 31, 2012, the CEC adopted the 2013 Building Energy Efficiency Standards, which went into effect on July 1, 2014. Buildings that are constructed in accordance with the 2013 Building Energy Efficiency Standards are 25 percent (residential) to 30 percent (nonresidential) more energy efficient than the 2008 standards as a result of better windows, insulation, lighting, ventilation systems, and other features.

Most recently, the CEC adopted the 2016 Building Energy Efficiency Standards. The 2016 Standards will continue to improve upon the current 2013 Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. These standards will go into effect on January 1, 2017. Under the 2016 Standards, residential buildings are 28 percent more energy efficient than the 2013 Standards, and nonresidential buildings are 5 percent more energy efficient than the 2013 Standards (CEC 2015a).

The 2016 standards will not achieve zero net energy. However, they do get very close to the state's goal and make important steps toward changing residential building practices in California. The 2019 standards will take the final step to achieve zero net energy for newly constructed residential buildings throughout California (CEC 2015b).

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.[10] The mandatory provisions of the California Green Building Code Standards became effective January 1, 2011, and were updated most recently in 2016.

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

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

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 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 2013 California Green Building Standards Code also requires that at least 50 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.

5.4.1.3 EXISTING EMISSIONS

The project site currently generates GHG emissions from operation of the existing Corona Del Mar high school and middle school. Emission sources include transportation (e.g., vehicle emissions associated with student trips), area (e.g., paints buildings, consumer cleaning products), energy (e.g., natural gas usage for heating), water usage, and waste.

5.4.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

GHG-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

GHG-2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

5.4.2.1 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

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

For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD requires an assessment of GHG emissions. SCAQMD has identified a "bright-line" 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. This bright-line threshold is 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 3.** If GHG emissions are less than the screening-level threshold, project-level and cumulative GHG emissions are less than significant.

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

SCAQMD has identified an efficiency target for projects that exceed the bright-line threshold: a 2020 efficiency target 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 analyses (e.g., general plans). Service population is defined as the sum of the residential and employment population of a project. 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.[11]

The buildout year of the project is 2020. For the purpose of this project, if project-related emissions exceed the screening threshold of 3,000 $MTCO_2e$ per year, project emissions would be compared to the per capita target of 4.8 $MTCO_2e$ per year per service population.[12] If the per capita efficiency target is exceeded, GHG emissions would be considered potentially significant in the absence of mitigation measures.

5.4.3 Environmental Impacts

5.4.3.1 METHODOLOGY

The analysis in this section is based on buildout of the proposed project as modeled using CalEEMod, version 2016.3.1, for the following sectors:

- **Transportation.** GHG emissions are based on the trip generation provided by IBI Group (Appendix G1).
- **Solid Waste Disposal.** Indirect emissions from waste generation during stadium events are based on the solid waste generation rate for an arena in the CalEEMod User's Guide Appendix D.
- **Water/Wastewater.** GHG emissions from this sector are associated with the embodied energy used to supply water, treat water, distribute water, and then treat wastewater and fugitive GHG emissions from wastewater treatment. Emissions are based on water consumption rates from the California Uniform Building Code and irrigation water use from past similar projects.
- **Area Sources.** GHG emissions from this sector are from use of landscaping equipment used for property maintenance.
- **Energy.** GHG emissions from this sector are from use of electricity and natural. New buildings are assumed to comply with the 2016 Building and Energy Efficiency Standards, which are 5 percent more energy efficient for nonresidential buildings than the 2013 standards.

---

[11] SCAQMD 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.

[12] Although SCAQMD's guidance identifies a threshold of 3,500 $MTCO_2e$ for residential projects, the 3,000 $MTCO_2e$ threshold applicable to mixed-use projects was applied to be conservative. Because the project's GHG emissions would be below the lower threshold, as discussed below, they would also be below the higher threshold applicable to residential projects.

- **Construction.** GHG emissions are from construction-related vehicle and equipment use provided by the District. Emissions are amortized over a 30-year period and included as part of the overall inventory.

Life cycle emissions are not included in this analysis because not enough information is available for the proposed project, and therefore life cycle GHG emissions would be speculative.[13] Black carbon emissions are not included in the GHG analysis because CARB does not include this pollutant in the state's AB 32 inventory and treats this short-lived climate pollutant separately.[14] GHG modeling is included in Appendix D of this Draft EIR.

5.4.3.2 IMPACT ANALYSIS

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.4-1: Development of the proposed project would not result in a substantial increase of GHG emissions that would exceed the South Coast Air Quality Management District's significance criteria. [Threshold GHG-1]

Impact Analysis: 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 greenhouse gas emissions on its own to influence global climate change significantly; hence, the issue of global climate change is, by definition, a cumulative environmental impact.

The proposed project would generate GHG emissions from vehicle trips generated by the project, energy use (indirectly from purchased electricity use and directly through fuel consumed for building heating), area sources (e.g., equipment used on-site, consumer products, coatings), water/wastewater generation, and waste disposal. Annual GHG emissions were calculated for construction and operation of the project. Total construction emissions were amortized over 30 years and included in the emissions inventory to account for the short-term GHG emissions from the construction phase of the project. Project-related GHG emissions are shown in Table 5.4-5, *Project-Related GHG Emissions*. As shown in the table, the proposed project at buildout would generate a net of 203 $MTCO_2e$ emissions per year. The total net increase of GHG emissions on-site from the project would not exceed the SCAQMD's bright-line threshold of 3,000 $MTCO_2e$, and the proposed project's cumulative contribution to GHG emissions is less than significant.

[13] 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).

[14] Particulate matter emissions, which include black carbon, are analyzed in Section 5.2, *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 2016c).

Table 5.4-5 Project-Related GHG Emissions

Source	$MTCO_2e$/year[1]	Percent of Project Total
Area	<1	<1%
Energy[1]	8	4%
Mobile	88	43%
Lighting[2]	60	29%
Waste	30	15%
Water	13	7%
Amortized Construction Emissions[3]	5	2%
Total Emissions	203	100%
SCAQMD's Bright-Line Threshold	3,000	NA
Exceeds Bright-Line Threshold	No	NA

Source: CalEEMod 2016.3.1.
$MTCO_2e$ = metric tons of carbon dioxide-equivalent
Note: Percentage points may not total 100 due to rounding.
1 Assumes implementation of the 2013 California Green Building Standards Code (CALGreen) and 2016 Building and Energy Efficiency Standards. The 2016 Building and Energy Efficiency Standards are 5 percent more energy efficient than the 2013 Standards for non-residential buildings.
2 Stadium lighting information is based on the lighting information as provided by the District and using default CalEEMod 2016.3.1 carbon intensity for Southern California Edison. Parking lot lighting information is based on the lighting information provided by the District and using default CalEEMod 2016.3.1 carbon intensity for Southern California Edison.
3 Construction emissions are amortized over a 30-year project lifetime per recommended SCAQMD methodology.

Impact 5.4-2: The proposed project would not conflict with the California Air Resources Board's Scoping Plan or the Southern California Association of Governments' 2016-2040 Regional Transportation Plan / Sustainable Communities Strategy. [Threshold GHG-2]

Impact Analysis: Applicable plans adopted for the purpose of reducing GHG emissions include CARB's Scoping Plan and SCAG's 2016-2040 RTP/SCS. A consistency analysis with these plans is presented below.

CARB Scoping Plan

In accordance with AB 32, CARB developed the 2008 Scoping Plan to outline the state's strategy to achieve 1990 level emissions by year 2020. 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 that is used to develop performance-based and efficiency-based CEQA criteria and GHG reduction targets for climate action planning efforts.

Since adoption of the 2008 Scoping Plan, state agencies have adopted programs identified in the plan, and the legislature has passed additional legislation to achieve the GHG reduction targets. Statewide strategies to reduce GHG emissions include the LCFS, California Appliance Energy Efficiency regulations, California Building Standards (i.e., CALGreen and the Building and Energy Efficiency Standards), RPS, and changes in the Corporate Average Fuel Economy standards (e.g., Pavley I and California Advanced Clean Cars [Pavley II]). The project GHG emissions shown in Table 5.4-5 include reductions associated with statewide strategies that have been adopted since AB 32. The proposed project would comply with these GHG emissions reduction measures as they are statewide strategies. However, the Scoping Plan itself is not directly applicable to the proposed project. Therefore, the proposed project would not obstruct implementation of the CARB Scoping Plan, and impacts would be less than significant.

SCAG's 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy

SCAG's 2016-2040 RTP/SCS was adopted April 7, 2016, and identifies:

- Multimodal transportation investments: bus rapid transit, light rail transit, heavy rail transit, commuter rail, and high-speed rail
- Active transportation strategies: e.g., bike ways and sidewalks
- Transportation demand management strategies
- Transportation systems management
- Highway and arterial improvements: interchange improvements, high-occupancy vehicle lanes, high-occupancy toll lanes
- Goods movement strategies
- Aviation and airport ground access improvements
- Operations and maintenance to the existing multimodal transportation system

SCAG's 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 transportation network. The overarching strategies in the 2016 RTP/SCS are to 1) allow the southern California region to grow in more compact communities in existing urban areas; 2) provide neighborhoods with efficient and plentiful public transit and abundant and safe opportunities to walk, bike, and pursue other forms of active transportation; and 3) preserve more of the region's remaining natural lands (SCAG 2016). The 2016 RTP/SCS contains transportation projects to help more efficiently distribute population, housing, and employment growth, as well as a forecast development that is generally consistent with regional-level general plan data. The projected regional development pattern—when integrated with the proposed regional transportation network identified in 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 RTP/SCS, but provides incentives for consistency for governments and developers. Table 5.4-6, *SCAG 2016 RTP/SCS Consistency*, evaluates the project in comparison to the three primary transportation-land use strategies in the RTP/SCS. The proposed project would not interfere with SCAG's ability to implement the regional strategies outlined in the 2016-2040 RTP/SCS. No impact would occur and no mitigation measures are required.

Table 5.4-6 SCAG 2016 RTP/SCS Consistency

SCAG Transportation-Land Use Strategies	Implementing Policies/Strategies	Consistency
Focus new growth around High Quality Transit Areas (HQTA). The 2016 RTP/SCS overall land use pattern reinforces the trend of focusing new housing and employment in the region's high quality transit areas (HQTA). The 2016 RTP/SCS assumes that 46 percent of new housing and 55 percent of new employment locations developed between 2012 and 2040 will be located within HQTAs, which comprise only three percent of the total land area in the SCAG region (SCAG 2016).	Additional local policies that ensure that development in HQTAs achieve the intended reductions in VMT and GHG emissions include: ▪ Affordable housing requirements ▪ Reduced parking requirements ▪ Adaptive reuse of existing structures ▪ Density bonuses tied to family housing units such as three- and four bedroom units ▪ Mixed-use development standards that include local serving retail ▪ Increased Complete Streets investments around HQTAs.	**Not Applicable:** The proposed project is not in a HQTA. However, the proposed project would accommodate various sporting practices and events that currently take place on other facilities, reducing VMT and GHG emissions.
Plan for growth around Livable Corridors. SCAG's livable corridors strategy seeks to revitalize commercial strips through integrated transportation and land use planning that results in increased economic activity and improved mobility options.	Additional livable corridors strategies include: ▪ Transit improvements, including dedicated lane Bus Rapid Transit (BRT) or semi-dedicated BRT-light. The remaining corridors have the potential to support other features that improve bus performance (enhanced bus shelters, real-time travel information, off-bus ticketing, all door boarding and longer distances between stops to improve speed and reliability). ▪ Active transportation improvements: Livable corridors include increased investments in complete streets to make these corridors and the intersecting arterials safe for biking and walking. ▪ Land use policies: Livable Corridor strategies include the development of mixed-use retail centers at key nodes along the corridors, increasing neighborhood-oriented retail at more intersections and zoning that allows for the replacement of under-performing auto-oriented strip retail between nodes with higher density residential and employment.	**Not Applicable:** The proposed project is not in a transportation corridor. However, the project site is near existing bus routes.
Provide more options for short trips in Neighborhood Mobility Areas and Complete Communities: Neighborhood mobility areas have a high intersection density, low to moderate traffic speeds and robust residential retail connections. These areas are suburban in nature, but can support slightly higher density in targeted locations. The land use strategies include shifting retail growth from large centralized retail strip malls to smaller distributed centers throughout a neighborhood mobility area.	▪ Neighborhood mobility area land use strategies include pursuing local policies that encourage replacing motor vehicle use with Neighborhood Electric Vehicle (NEV) use. NEVs are a federally designated class of passenger vehicle rated for use on roads with posted speed limits of 35 miles per hour or less. Steps needed to support NEV use include providing state and regional incentives for purchases, local planning for charging stations, designating a local network of low speed roadways and adopting local regulations that allow smaller NEV parking stalls ▪ Complete communities strategies include creation of mixed-use districts through a concentration of activities with housing, employment, and a mix of retail and services, located in close proximity to each other.	**Consistent:** The proposed project would accommodate various sporting practices and events that currently take place on other facilities. This would contribute to reducing VMT and GHG emissions.

Table 5.4-6 SCAG 2016 RTP/SCS Consistency

SCAG Transportation-Land Use Strategies	Implementing Policies/Strategies	Consistency
	Focusing a mix of land uses in strategic growth areas creates complete communities wherein most daily needs can be met within a short distance of home, providing residents with the opportunity to patronize their local area and run daily errands by walking or cycling rather than traveling by automobile.	

Source: SCAG 2016.

5.4.4 Cumulative Impacts

Project-related GHG emissions are not confined to a particular air basin but are dispersed worldwide. Therefore, impacts under Impact 5.4-1 are not project-specific impacts, but the proposed project's contribution to the cumulative impact of global warming. Implementation of the proposed project would result in a nominal increase in GHG emissions. Thus, the proposed project's GHG emissions and contribution to global climate change impacts are not considered cumulatively considerable, and therefore are less than significant.

5.4.5 Existing Regulations and Standard Conditions

Existing Regulations

State

- AB 32: California Global Warming Solutions Act
- SB 32: California Global Warming Solutions Act, Target Year 2030
- Sustainable Communities and Climate Protection Act (SB 375)
- Executive Order S-03-05 and Executive Order B-30-15: Greenhouse Gas Emission Reduction Targets
- Pavley Fuel Efficiency Standards (AB 1493)
- California Integrated Waste Management Act of 1989 (AB 939)
- California Mandatory Commercial Recycling Law (AB 341)
- California Advanced Clean Cars CARB/ Low-Emission Vehicle Program – LEV III (Title 13 CCR)
- Heavy-Duty Vehicle Greenhouse Gas Emissions Reduction Measure (Title 17 CCR)
- Low Carbon Fuel Standard (Title 17 CCR)
- Title 24 California Code of Regulations, Part 6 (Building and Energy Efficiency Standards)
- Title 24 California Code of Regulations, Part 11 (California Green Building Code)
- Title 20 California Code of Regulations (Appliance Energy Efficiency Standards)
- Title 17 California Code of Regulations (Low Carbon Fuel Standard)

- California Water Conservation in Landscaping Act of 2006 (AB 1881)
- California Water Conservation Act of 2009 (SBX7-7)
- Statewide Retail Provider Emissions Performance Standards (SB 1368)
- Renewable Portfolio Standards (SB 1078, 701, and X1-2)

5.4.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impact would be less than significant: 5.4-1 and 5.4-2.

5.4.7 Mitigation Measures

No mitigation measures are required.

5.4.8 Level of Significance After Mitigation

Impacts would be less than significant.

5.4.9 References

California Air Pollution Control Officers Association (CAPCOA). 2016. California Emissions Estimator Model (CalEEMod). Version 2016.3.1. Prepared by: BREEZE Software, A Division of Trinity Consultants in collaboration with South Coast Air Quality Management District and the California Air Districts.

California Air Resources Board (CARB). 2008, October. Climate Change Proposed Scoping Plan: A Framework for Change.

———. 2010, August. Staff Report Proposed Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375.

———. 2011, December. California Greenhouse Gas Emissions Inventory: 2000-2009: By Category as Defined by the Scoping Plan. http://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2009/ghg_inventory_00-09_report.pdf.

———. 2014a, May. California Greenhouse Gas Emission Inventory: 2000-2012. https://www.arb.ca.gov/cc/inventory/pubs/reports/ghg_inventory_00-12_report.pdf.

———. 2014b, May 15. Proposed First Update to the Climate Change Scoping Plan: Building on the Framework. http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm.

———. 2015, September 15. ARB Process and Schedule for SB 375 Target Update. http://www.arb.ca.gov/cc/sb375/sb375.htm.

5. Environmental Analysis
GREENHOUSE GAS EMISSIONS

———. 2016a, June. California Greenhouse Gas Inventory - 2016 Edition, 2016 Edition of the GHG Emission Inventory Released (June 2016), Emissions from 2000-2014: By Category as Defined in the 2008 Scoping Plan. http://www.arb.ca.gov/cc/inventory/data/data.htm.

———. 2016b, June 17. State of California: 2030 Target Scoping Plan Update Concept Paper. http://www.arb.ca.gov/cc/scopingplan/document/2030_sp_concept_paper2016.pdf.

———. 2016c, April. Proposed Short-Lived Climate Pollutant Reduction Strategy. https://www.arb.ca.gov/cc/shortlived/meetings/04112016/proposedstrategy.pdf.

California Climate Action Team (CAT). 2006, March. Climate Action Team Report to Governor Schwarzenegger and the Legislature.

California Climate Change Center (CCCC). 2012, July. Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California.

California Energy Commission (CEC). 2006a, December. Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004. Report CEC-600-2006-013-SF.

———. 2006b. Our Changing Climate: Assessing the Risks to California. 2006 Biennial Report. California Climate Change Center. CEC-500-2006-077.

———. 2009. The Future Is Now: An Update on Climate Change Science, Impacts, and Response Options for California. CEC-500-2008-0077.

———. 2015a, June 10. 2016 Building Energy Efficiency Standards: Adoption Hearing Presentation. http://www.energy.ca.gov/title24/2016standards/rulemaking/documents.

———.2015b. 2016 Building Energy and Efficiency Standards: Frequently Asked Questions. http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf.

Governor's Office of Planning and Research (OPR). 2008, June. CEQA and Climate Change: Addressing Climate Change through CEQA Review. Technical Advisory. http://www.opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf.

Intergovernmental Panel on Climate Change (IPCC). 1995. *Second Assessment Report: Climate Change 1995*.

———. 2001. *Third Assessment Report: Climate Change 2001*. New York: Cambridge University Press.

———. 2007. *Fourth Assessment Report: Climate Change 2007*. New York: Cambridge University Press.

———. 2013. *Fifth Assessment Report: Climate Change 2013*. New York: Cambridge University Press.

South Coast Air Quality Management District (SCAQMD). 2010, September 28. Greenhouse Gases (GHG) CEQA Significance Thresholds Working Group: Meeting 15. http://www.aqmd.gov/ceqa/handbook/GHG/2010/sept28mtg/sept29.html.

Southern California Association of Governments (SCAG). 2016, April. The 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS): A Plan for Mobility, Accessibility, Sustainability, and a High Quality of Life. http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf.

United States Environmental Protection Agency (USEPA). 2009, December. EPA: Greenhouse Gases Threaten Public Health and the Environment. http://yosemite.epa.gov/opa/admpress.nsf/0/08D11A451131BCA585257685005BF252.

———. 2015. Overview of Greenhouse Gases. http://www3.epa.gov/climatechange/ghgemissions/gases.html.

This page intentionally left blank.

5.5 HYDROLOGY AND WATER QUALITY

This section of the Draft Environmental Impact Report (Draft EIR) evaluates the potential for the proposed project to impact hydrology and water quality. This section discusses regulatory framework, existing conditions, and the significance analysis of potential impacts. Hydrology deals with the distribution and circulation of water, both on land and underground, and water quality deals with the quality of surface and groundwater resources.

5.5.1 Environmental Setting

5.5.1.1 REGULATORY FRAMEWORK

Local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized in this section. They are designed to achieve regional water quality objectives and thereby protect the beneficial uses of the region's surface and groundwater.

Federal

United States Code, Title 33, Sections 1251 et seq. (1972)

The **Clean Water Act** (CWA) (also known as the federal Water Pollution Control Act) is the principal statute governing water quality. Under the CWA of 1977, the United States Environmental Protection Agency (EPA) seeks to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The statute employs a variety of regulatory and non-regulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The CWA authorizes the EPA to implement water quality regulations. The National Pollutant Discharge Elimination System (NPDES) permit program under Section 402(p) of the CWA controls water pollution by regulating stormwater discharges into the waters of the United States. California has an approved state NPDES program. The EPA has delegated authority for water permitting to the State Water Resources Control Board (SWRCB), which has nine regional boards. The Santa Ana Regional Water Quality Control Board (RWQCB) (Region 8) regulates water quality at the project site.

Section 303(d) of the CWA requires that each state identify water bodies or segments of water bodies that are "impaired" (i.e., do not meet one or more of the water quality standards established by the state). These waters are identified in the Section 303(d) list as waters that are polluted and need further attention to support their beneficial uses. Once the water body or segment is listed, the state is required to establish a total maximum daily load (TMDL) for the pollutant causing the impairment. Typically, TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The intent of the 303(d) list is to identify water bodies that require a TMDL to maintain water quality. In accordance with Section 303(d), the RWQCB identifies impaired water bodies in its jurisdiction and the pollutant or stressor responsible. The project site is approximately 0.4 mile east of Upper Newport Bay, which is designated as a 303(d) impaired water body.

5. Environmental Analysis
HYDROLOGY AND WATER QUALITY

Sections 401 and 404 of the CWA—administered by the US Army Corps of Engineers—regulate the water quality of all discharges of fill or dredged material into waters of the United States, including wetlands and intermittent stream channels. Because the existing site is currently developed and there are no ephemeral drainages and/or wetlands within the site boundaries, permits from the Army Corps of Engineers under Section 404 of the CWA and/or water quality certification from the Santa Ana RWQCB under Section 401 of the CWA would not be required.

United States Code, Title 42, Sections 4001 et seq.

The **National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973** mandate the Federal Emergency Management Agency (FEMA) to evaluate flood hazards. FEMA administers the National Flood Insurance Program to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains. FEMA also issues Flood Insurance Rate Maps (FIRMs) that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection established by FEMA is the 100-year flood event, also described as a flood that has a 1 percent chance of occurring in any given year. According to the most recent FIRM that covers the project site (FIRM No. 06059C0269J, dated December 3, 2009), it is not within a 100-year or 500-year floodplain.

State

California Government Code, Section 53097

Section 53097 requires school districts to comply with any city or county ordinance regulating drainage improvements. It also requires school districts to comply with ordinances requiring review and approval of grading plans as they relate to design and construction of onsite improvements that affect drainage.

California Water Code, Sections 13000 et seq.

The **Porter-Cologne Water Quality Act** is the basic water quality control law for California. Under this act, the SWRCB has ultimate control over state water rights and water quality policy. In California, the EPA has delegated authority to issue NPDES permits to the SWRCB. The SWRCB, through its nine RWQCBs, carries out the regulation, protection, and administration of water quality in each region. Each regional board is required to adopt a water quality control plan (or Basin Plan) that designates beneficial uses and water quality objectives for the region's surface water and groundwater basins.

The project site is in the jurisdiction of the Santa Ana RWQCB, Region 8, which encompasses the Santa Ana River watershed. The Basin Plan for Region 8 was adopted in 1995 and updated in 2008 and 2011. It gives direction on the beneficial uses of state waters in Region 8; describes the water quality that must be maintained to support such uses; and provides programs, projects, and other actions necessary to achieve the standards in the Basin Plan. The Basin Plan also provides all relevant information necessary to carry out the state's antidegradation policy for surface waters and groundwater, 303(d) listing of impaired waters, and related TMDLs.

State Regulatory Agencies

State Water Resources Control Board

NPDES Permit No. CAS 618030 (Municipal Separate Storm Sewer System [MS4] Permit)

The project area is under the jurisdiction of the Santa Ana RWQCB (Region 8), which has issued three municipal stormwater permits to its three counties (Orange, Riverside, and San Bernardino). The project site is in Orange County and subject to the waste discharge requirements of Orange County MS4 permit, Order No. R8-2009-0030, NPDES Permit No. CAS618030 as amended by Order No. R8-2010-0062. The permit is currently in the process of being updated, and the Santa Ana RWQCB is soliciting comments on the draft MS4 permit.

The County of Orange, the Orange County Flood Control District, and 26 incorporated cities in Orange County, including Newport Beach, are permittees under the MS4 Permit. The permit covers approximately 789 square miles and regulates the discharge of pollutants in urban runoff from non-agricultural, man-made sources. The County of Orange is the principal permittee and submits drainage area management plans (DAMPs) to the RWQCB that identify programs and policies, including best management practices (BMPs), to achieve water quality standards in the receiving waters. The latest DAMP is dated July 2003 and describes the program elements necessary to comply with the MS4 permit. The DAMP is periodically updated using a consensus building process that involves public- and private-sector input and public review through the California Environmental Quality Act (CEQA) process.

New development projects that create 10,000 square feet or more of impervious surface and redevelopment projects that add or replace 5,000 square feet of impervious surface are required by Orange County's MS4 permit to retain onsite a specified volume of stormwater runoff from a design storm event and prepare a water quality management plan (WQMP) for submittal and approval by the permitting agency. The County of Orange prepared a 2011 Model WQMP to assist with project development in north and central Orange County, which was approved by the Santa Ana RWQCB on May 19, 2011.

Construction General Permit Order No. 2009-0009-DWQ

Pursuant to the CWA, in 2001, the SWRCB issued a statewide NPDES permit for stormwater discharges from construction sites (Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ and 2012-0006-DWQ; NPDES No. CAS000002). Under this Construction General Permit (CGP), discharges of stormwater from construction sites with a disturbed area of one or more acres are required to either obtain individual NPDES permits for stormwater discharges or be covered by the CGP. Coverage by the CGP is accomplished by completing and filing permit registration documents with the SWRCB, which include a notice of intent, risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), postconstruction control requirements, annual fee, and signed certification statement. These are submitted electronically to the SWRCB via the SMARTS website. Each applicant under the CGP must ensure that a SWPPP is prepared prior to the start of grading, and provisions in the SWPPP must be implemented throughout the construction period. The SWPPP must list BMPs implemented on the construction site to protect stormwater runoff and must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented based on the risk level of the site; and inspection, reporting, training, and recordkeeping requirements. The SWRCB is the permitting agency and the Santa Ana RWQCB provides local oversight and enforcement.

Local

City of Newport Beach

The City of Newport Beach has developed a local implementation plan, which provides a written account of the activities that the City has undertaken and is undertaking to meet the requirements of the MS4 permit (Order No. R8-2002-0010, NPDES No. CAS618030) and make a meaningful improvement in urban water quality. The local implementation plan is intended to serve as the basis for city compliance during the five-year life of the MS4 permit (Order No. R8-2002-0010, NPDES No. CAS618030), but is subject to updating and modification as the City determines necessary or as directed by the RWQCB. The City of Newport Beach requires all new development and significant redevelopment projects in its jurisdiction to prepare and submit a WQMP in compliance with the Orange County DAMP to the City for review and approval.

5.5.1.2 EXISTING CONDITIONS

Regional Setting

The project site is within the Newport Bay Watershed, which spans about 154 square miles of central Orange County. It extends from the foothills of the Santa Ana Mountains in the east to the San Joaquin Hills in the west and southwest and encompasses all waters that drain into Newport Bay. San Diego Creek is the main river that drains into Upper Newport Bay. Figure 5.5-1 shows the boundaries of the Newport Bay Watershed.

The Newport Bay Watershed is part of the Central Orange County Watershed Management Area, and the Central Orange County Watershed Management Area Integrated Regional Watershed Management Plan was finalized in 2012. The watershed contains three Critical Coastal Areas, two Areas of Special Biological Significance, nine miles of coastline, and a functioning estuary designated as a State Ecological Reserve.

Local Surface Waters and Drainage

The nearest surface water body to the project site is Upper Newport Bay, which is about 1,400 feet to the southwest. The topographic gradient in the vicinity of the project site is primarily to the west. Stormwater runoff from the CdM campus is collected in an internal storm drain system that discharges to catch basins at the southern boundary of the site (i.e., near the intersection of East Bluff Drive and Mar Vista Drive and the intersection of Mar Vista Drive and Domingo Drive). The catch basins are connected to a 36-inch city storm drain that is aligned beneath Mar Vista Drive and eventually discharges into Upper Newport Bay. Stormwater from the site also discharges to a catch basin at the northwest corner of the school site (i.e., near the intersection of Vista del Oro and Mar Vista Drive) that connects to a 24-inch city storm drain. Runoff in this storm drain flows to the southwest in an open space/green area between houses; the drain eventually increases to 36 inches prior to discharge into Upper Newport Bay.

Figure 5.5-1 - Newport Bay Watersheds

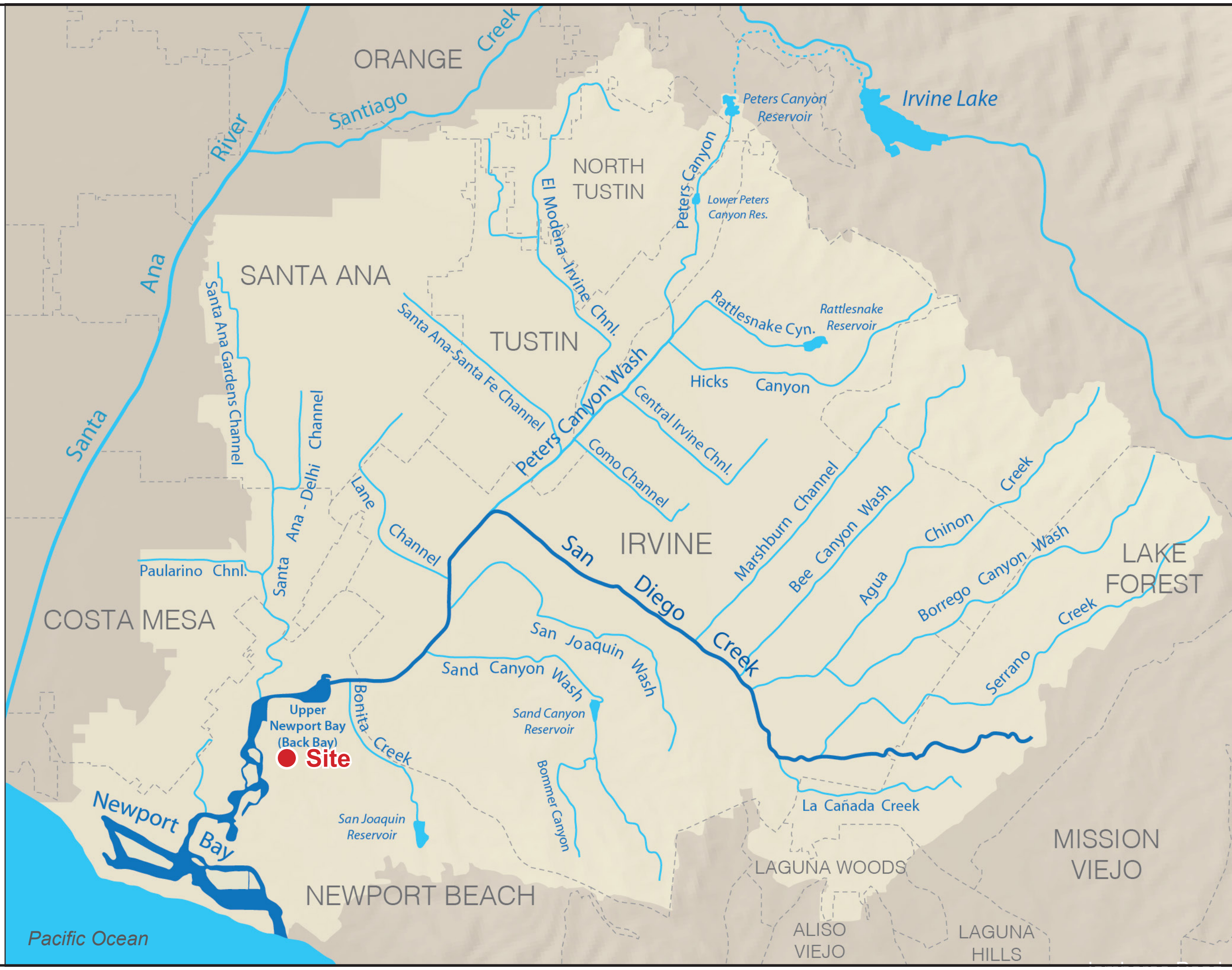


Photo Source: Wikipedia, 2016

5. Environmental Analysis
HYDROLOGY AND WATER QUALITY

This page intentionally left blank.

Surface Water Quality

Stormwater runoff from the project site would be directed to the City's storm drain system with ultimate discharge into Upper Newport Bay. The Santa Ana RWQCB monitors surface water quality through implementation of the Basin Plan and designates beneficial uses for surface water bodies and groundwater within the region. The designated beneficial uses for water bodies and groundwater in the vicinity of the project site are listed in Table 5.5-1.

Table 5.5-1 Designated Beneficial Uses of Water Bodies in Vicinity of Project Site

Water Body	Designated Beneficial Use
Surface Water	
Upper Newport Bay	REC-1, REC-2, COMM, BIOL, WILD, RARE, SPWN, MAR, SHEL, EST
Lower Newport Bay	NAV, REC-1, REC-2, COMM, WILD, RARE, SPWN, MAR, SHEL
Groundwater	
Coastal Plain of Orange County	MUN, PROC, IND, AGR

Source: SARWQCB 1995.
Notes: Municipal and Domestic Water Supply (MUN), Industrial Process Water Supply (PROC), Industrial Service Water Supply (IND), Agricultural Supply (AGR), Water Contact Recreation (REC-1), Noncontact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Preservation of Biological Habitats of Special Significance (BIOL), Wildlife Habitat (WILD), Rare, Threatened or Endangers Species (RARE), Spawning, Reproduction and Development (SPWN), Marine Habitat (MAR), Shellfish Harvesting (SHEL), Estuarine Habitat (EST), Navigation (NAV).

In addition to the establishment of beneficial uses and water quality objectives, another approach to improving water quality is a watershed-based methodology that focuses on all potential pollution sources and not just those associated with point sources. If a body of water does not meet established water quality standards under traditional point source controls, it is listed as an impaired water body under Section 303(d) of the CWA. For 303(d) listed water bodies, a limit is established that defines the maximum amount of pollutants (or TMDL) that can be received by that water body. Upper Newport Bay and Lower Newport Bay are listed as impaired water bodies. The pollutants of concern and the status of TMDL implementation are listed in Table 5.5-2.

Table 5.5-2 Newport Bay Water Quality Impairments

Contaminant	Total Maximum Daily Load (TMDL) Status; Completion Date for Proposed TMDLs
Upper Newport Bay	
Chlordane (organochlorine pesticide)	Proposed 2019
Copper	Proposed 2007
DDT (organochlorine pesticide)	Proposed 2019
Indicator bacteria	Approved 2000
Metals	Proposed 2019
Nutrients	Approved 1999
PCBs (polychlorinated biphenyls)	Proposed 2019
Pesticides	Approved 2004

Table 5.5-2 Newport Bay Water Quality Impairments

Contaminant	Total Maximum Daily Load (TMDL) Status; Completion Date for Proposed TMDLs
Sediment Toxicity	Proposed 2019
Sedimentation/Siltation	Approved 1999
Lower Newport Bay	
Chlordane (organochlorine pesticide)	Proposed 2019
Copper	Proposed 2007
DDT (organochlorine pesticide)	Proposed 2019
Indicator Bacteria	Approved 2000
Nutrients	Approved 2009
PCBs (polychlorinated biphenyls)	Proposed 2019
Pesticides	Approved 2004
Sediment Toxicity	Proposed 2019

Source: SWRCB 2013.

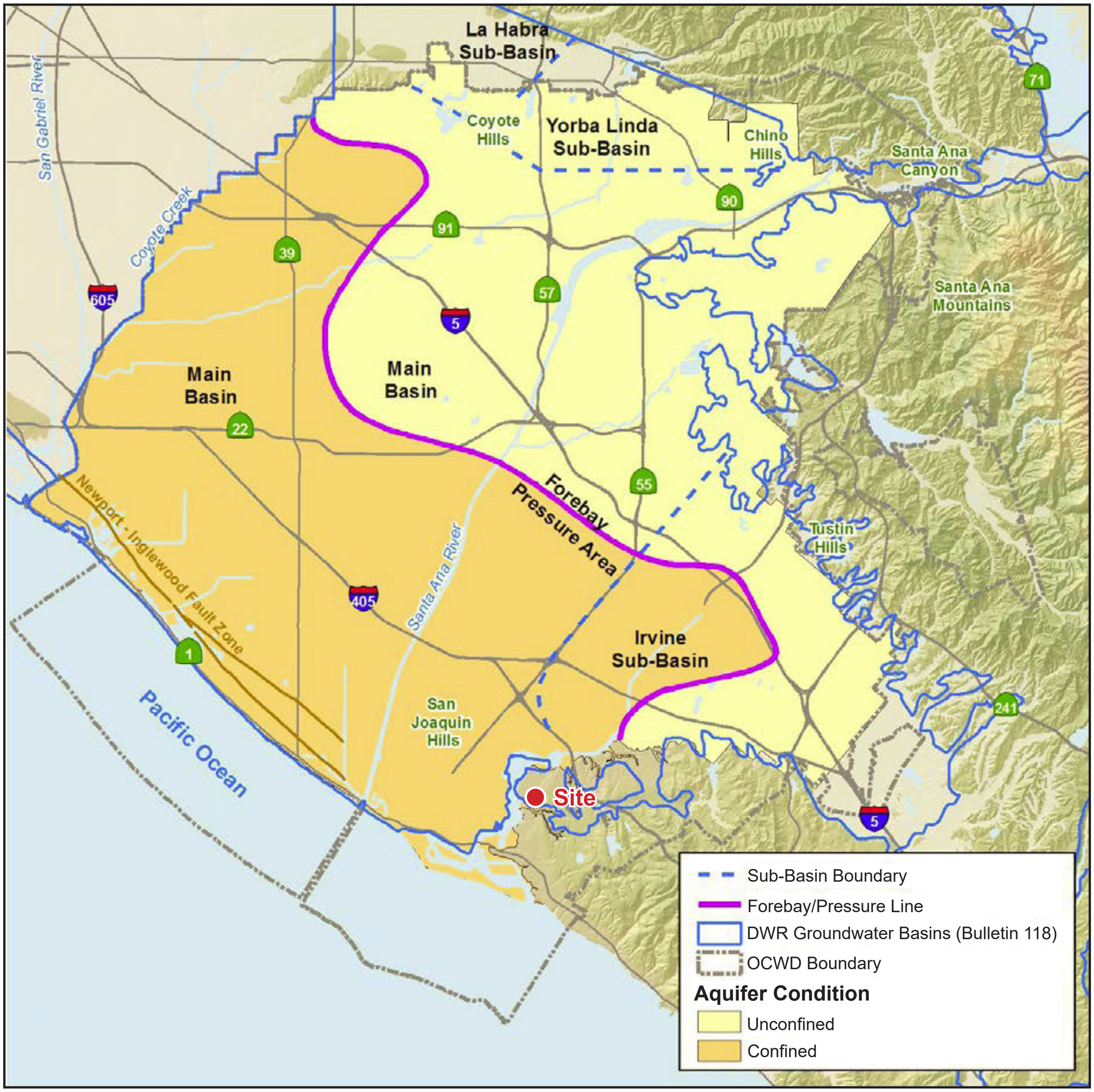
Groundwater

The project site is in the Coastal Plain of the Orange County Groundwater Basin (OCWD 2015), as shown on Figure 5.5-2. The basin underlies the northern and central portions of Orange County, covering an area of approximately 350 square miles. It is 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 basin boundary extends to the Orange County-Los Angeles line to the northwest, where groundwater flow is unrestricted across the county line into the Central Basin of Los Angeles County, and the Newport-Inglewood fault forms the southwestern boundary. Recharge to the basin occurs from percolation of Santa Ana River flow, infiltration of precipitation, injection into wells, and recharge basins. The Department of Water Resources divided the basin into two primary hydrologic divisions, the Forebay and Pressure areas (DWR 2015). The Forebay refers to the area of intake or recharge where most of the groundwater recharge occurs. The Pressure Area is generally defined as the area of the basin where large quantities of surface water and near-surface groundwater is impeded from percolating into the major producible aquifers by clay and silt layers at shallow depths (upper 50 feet).

The Orange County Water District (OCWD) is a special district that was formed to manage the Orange County Groundwater Basin. Groundwater provides approximately 70 percent of the water supply to residents in northern and central Orange County. The project site is within the pressure area of the basin, which means that surface water is impeded from percolation to the deeper aquifers by clay and silt layers. The basin has about 66 million acre-feet of water storage. The OCWD manages basin storage within a safe operating range by balancing production and recharge and regulating the annual amount of pumping. It also operates surface-water recharge facilities and a groundwater replenishment system using recycled water that is injected into groundwater wells for recharge and prevention of seawater intrusion.

Figure 5.5-2 - Coastal Plain of Orange County Groundwater Basin

5. Environmental Analysis



Source: OCWD, 2015

This page intentionally left blank.

The City of Newport Beach receives its water from two main sources: groundwater from the basin, which is managed by OCWD, and imported water purchased from the Municipal Water District of Orange County (MWDOC). The MWDOC is the regional wholesale water supplier for Orange County and purchases imported water from northern California and the Colorado River. The City also purchases recycled water from OCWD. The City meets up to 75 percent of its demand through groundwater, which is pumped from four wells in Fountain Valley. The groundwater is obtained primarily from the principal aquifer, which is between 200 and 1,300 feet below ground surface (bgs).

According to the 2015 Draft Urban Water Management Plan, the City has sufficient water available to meet the demand for normal years, single-dry years, and multiple-dry years (Newport Beach 2016a). Therefore, implementation of the proposed project would not adversely impact groundwater supply or recharge. In addition, the project would result in a net decrease in water demand since the field would be replaced with artificial turf, which does not require irrigation. The water demand for the new restrooms would be minimal because of the installation of water-conserving fixtures—per the Cal Green Building Code—and their use would be intermittent. As a result, the net water demand would be less than under existing conditions.

According to information obtained at a SWRCB Geotracker remediation site that is approximately 1,700 feet southwest from the project site, shallow groundwater is reported at depths between 11 and 52 feet bgs, with most groundwater measurements at greater than 20 feet bgs (SWRCB 2016). Therefore, grading and excavation activities for the proposed project would not intersect shallow groundwater, and construction dewatering would not be necessary.

Groundwater Quality

The groundwater in the Coastal Plain of the Orange County Groundwater Basin is classified as sodium-calcium bicarbonate (DWR 2003). Historically, it has been characterized as of good quality for domestic, irrigation, and industrial purposes. However, high total dissolved solids (TDS) and nitrate concentrations have been reported in some areas of the groundwater basin. Other pollutants include methyl tertiary butyl ether from underground fuel tank releases and volatile organic compounds from various industrial sources that have formed shallow groundwater plumes in some areas of Orange County. However, there are no regional groundwater plumes in the vicinity of the project site. OCWD collects and analyzes up to 1,700 groundwater samples per month to ensure that the extracted groundwater meets all federal and state water quality standards.

The Santa Ana RWQCB's Basin Plan also contains water quality criteria for groundwater. TDS and nitrate have specific water quality objectives based on the management zone. At the state level, the SWRCB and RWQCBs have authority to manage TDS in water supplies. There are two groundwater management zones in Orange County: Irvine Groundwater Management Zone and Orange County Groundwater Management Zone. The project site is in the Irvine Groundwater Management Zone. The water quality objectives for the Irvine Groundwater Management Zone are a TDS concentration of 910 mg/l (milligrams/liter) and nitrate as nitrogen concentration of 5.9 mg/l. According to the latest 2015 City of Newport Beach Groundwater Quality report, TDS concentrations were reported at 142 to 490 mg/l, and nitrate concentrations ranged from undetectable to 3.18 mg/l. Therefore, the TDS and nitrate concentrations in groundwater were less than the established water quality objectives. Nitrate was also less than the maximum contaminant level for drinking water of 10 mg/l; TDS have no maximum contaminant level.

5.5.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

HYD-1 Violate any water quality standards or waste discharge requirements.

HYD-2 Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted.

HYD-3 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in a substantial erosion or siltation on- or off-site.

HYD-4 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

HYD-5 Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

HYD-6 Otherwise substantially degrade water quality.

HYD-7 Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

HYD-8 Place within a 100-year flood hazard area structures which would impede or redirect flood flows.

HYD-9 Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

HYD-10 Be subject to inundation by seiche, tsunami, or mudflow.

The Initial Study, included as Appendix A, substantiates that impacts associated with the following thresholds would be less than significant:

- Threshold HYD-1
- Threshold HYD-2
- Threshold HYD-3

- Threshold HYD-6
- Threshold HYD-7
- Threshold HYD-8
- Threshold HYD-9
- Threshold HYD-10

These impacts will not be addressed in the following analysis.

5.5.3 Environmental Impacts

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.5-1: Development of the proposed project could alter the existing drainage pattern or contribute runoff water that could exceed the capacity of the existing or planned stormwater drainage system. [Thresholds HYD-4 and HYD-5]

Impact Analysis: The proposed project would take place within the boundaries of an already developed CdM MS/HS campus, which is currently connected to the City's storm drain system. However, the portion of the campus that would be converted to synthetic field is currently natural turf and is not connected to the existing storm drainage system. The project is considered a "significant redevelopment project" because it would add or create 5,000 square feet or more of impervious surface on an existing developed site. Therefore, the District will be required to implement stormwater treatment measures, including infiltration. However, because the increase is less than 50 percent of the existing impervious surfaces, the treatment measures apply only to the redevelopment portion of the project site and not the entire campus. Figures 5.5-3a and 3b illustrate the preliminary drainage plan for the proposed project.

The underdrain system for the sports field consists of 12-inch flat drains installed at a 45-degree angle with a spacing of 20 feet between the drains. The drains discharge to a 12-inch perforated pipe that collects the runoff from the field and connects to a 12-inch to 18-inch storm drain system that would border the sports field. Drainage from the bleachers and from the sand pits used for track and field events would also discharge to this storm drain system. The collected stormwater in the drainage system then enters a "continuous deflection system" that screens, separates, and filters debris, sediment, and hydrocarbons from the runoff prior to entering the underground infiltration system. Overflow from the underground infiltration system then discharges to the existing internal storm drain system with eventual discharge to the municipal storm drain system. In addition, roof runoff from the proposed 3,000-square-foot building would be directed to bioretention planters.

The Orange County MS4 permit and the Orange County Technical Guidance Document for the preparation of WQMPs require the capture and temporary detention of a design volume based on the runoff produced from the 85th percentile, 24-hour storm event, or design flow rate from the 0.2-inch/hour rainfall event. This would reduce peak flows and infiltrate some of the stormwater into the ground. In addition, site design BMPs would be implemented, including but not limited to:

- Preserve existing drainage patterns and time of concentration
- Minimize impervious area
- Disconnect impervious areas
- Native and/or drought tolerant landscaping

Structural control BMPs would include the following:

- Provide storm drain system stenciling and signage
- Design trash and waste storage areas to reduce the potential for pollutant introduction
- Use efficient irrigation systems and landscape design, water conservation, smart controllers, and source control, as applicable
- Maintain and inspect the structural BMP facilities, as specified in the WQMP.

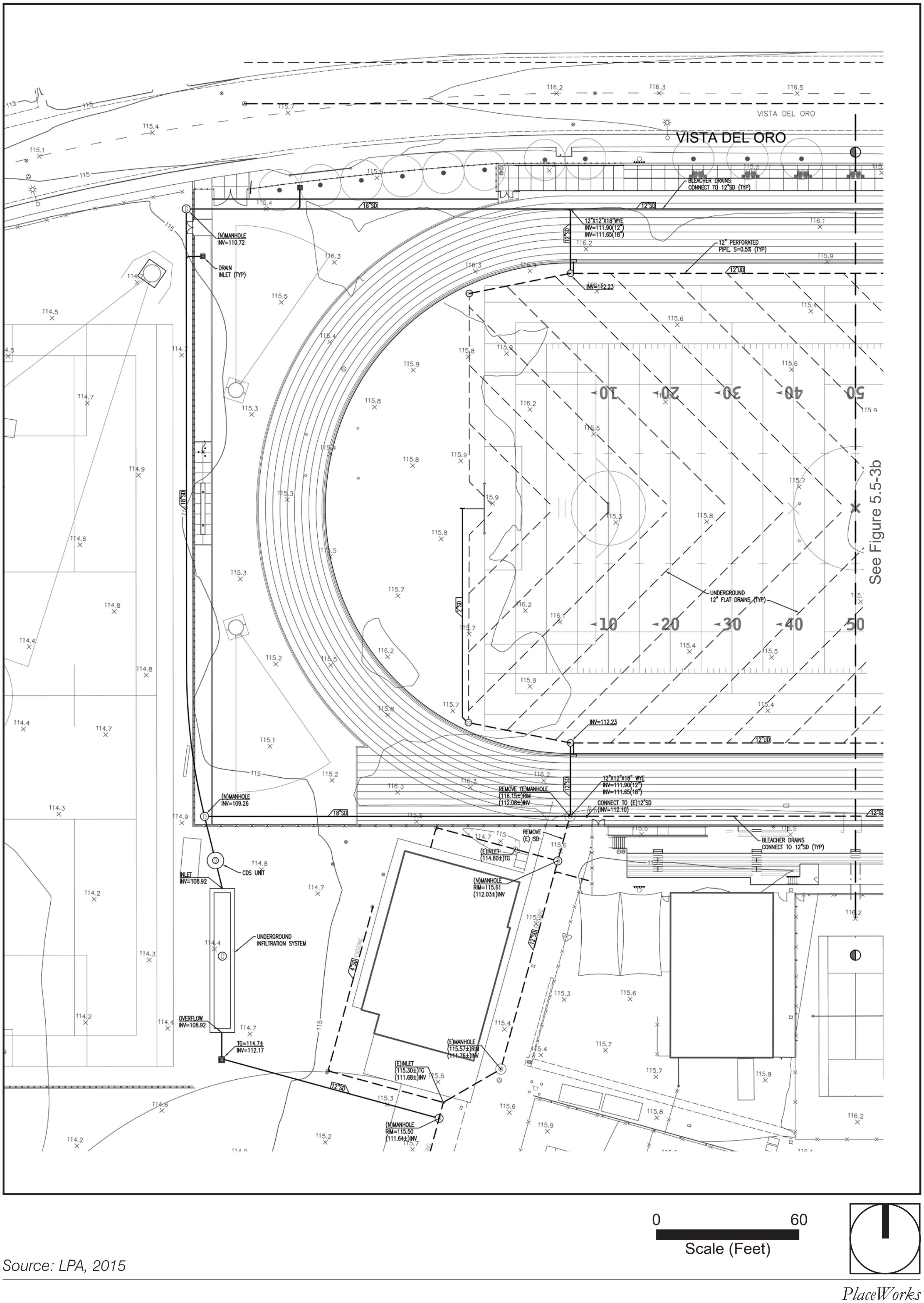
It does not appear that the project would create hydrologic conditions of concern, per Map XVI-3d in the Orange County Technical Guidance Document. Prior to the start of construction, a WQMP will be prepared that describes site conditions, pollutants of concern, LID and treatment control BMPs, calculations for the design capture volume based on final site design, source control BMPs, and an Operations and Maintenance (O&M) Plan that outlines the inspection and maintenance responsibilities for the treatment control BMPs (Mitigation Measure HYD-1).

With the installation of site design, source control, and treatment control BMPs and preparation and implementation of the WQMP, the proposed project would convey stormwater safely through the school site and would not result in flooding at the school site or any downstream areas. Therefore, impacts would be less than significant.

An increase in impervious surfaces with construction of a synthetic turf field, bleachers, and a 3,000-square-foot building could result in increases in stormwater runoff, which in turn could exceed the capacity of the existing or planned storm drain systems. The CdM campus is currently connected to the City's storm drain system, which eventually drains into Upper Newport Bay. Implementation of the proposed project would include the construction of a new internal storm drain system and connections, as shown on Figure 5.5-3. The preliminary plan is to connect drainage from the field, bleachers, and roof runoff from the building (after discharge into bioretention planters) into 12-inch storm drain pipes that connect to the existing storm drain system. The construction of the underground infiltration system would temporarily detain and reduce peak flows from the site. As a result, there would not be a significant change in the volume of stormwater runoff in a manner that would exceed the capacity of the City's storm drain system.

Figure 5.5-3a - Preliminary Storm Drainage Plan

5. Environmental Analysis

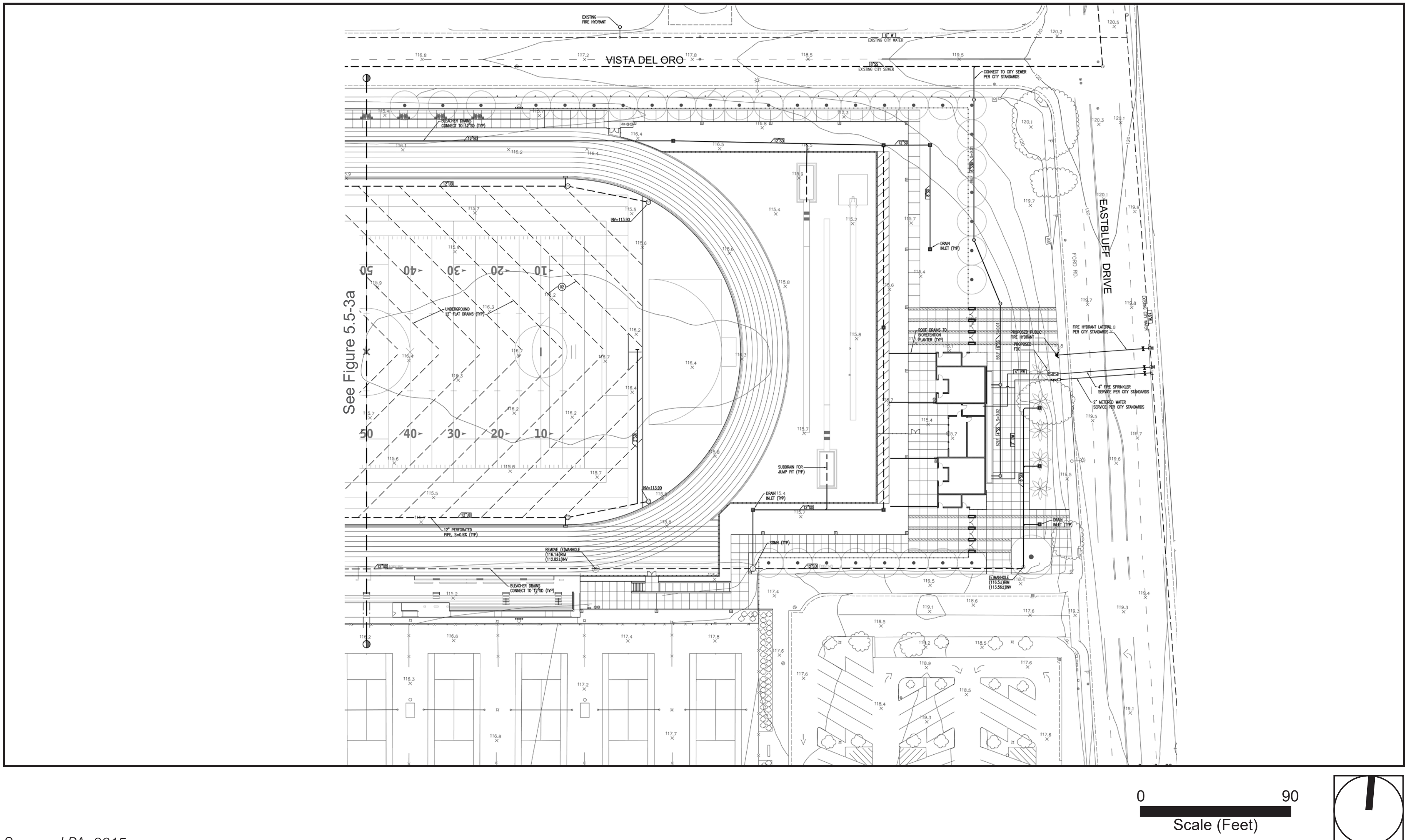


Source: LPA, 2015

This page intentionally left blank.

Figure 5.5-3b - Preliminary Storm Drainage Plan

5. Environmental Analysis



Source: LPA, 2015

This page intentionally left blank.

The new storm drain facilities and connections would be designed in accordance with the procedures specified in the Orange County Hydrology Manual and the City's Standard Design Requirements as required by Mitigation Measure HYD-2. Hydrologic and hydraulic design calculations would be provided to the City that describe the anticipated stormwater runoff volume from the site and evaluation of the capacity of the existing storm drain system to accept these flows. Prior to grading, the District would coordinate with the City of Newport Beach to have them review the proposed drainage system to ensure that additional stormwater runoff from the project would not exceed the capacity of its storm drain system. With the implementation of stormwater treatment control measures pursuant to Mitigation Measure HYD-1 that temporarily detain stormwater flows on-site in accordance with the Orange County MS4 Permit requirements and Orange County DAMP, the project would not exceed the capacity of the existing storm drain system, and impacts would be less than significant.

Impact 5.5-2: Compliance with the required Construction General Permit would ensure that development of the proposed project would not result in substantial additional sources of polluted runoff. [Threshold HYD-5]

Impact Analysis: An increase in impervious surfaces with development of the proposed project could result in increases in stormwater runoff; converting the natural turf field to a synthetic field with a cryogenic styrene-butadiene rubber (SBR) and sand infill system could result in the introduction of pollutants into the stormwater runoff.

Concerns have been raised by the public about the safety of artificial turf fields; this analysis specifically looks at potential impacts to water quality in stormwater runoff. An artificial turf fields consists of a top layer of polyethylene or polypropylene grass fibers, with a crumb-rubber and sand infill layer, underlain by crushed stone/gravel and an underground drainage system. The supplier of the artificial turf for this project is FieldTurf, which uses an infill layer composed of a mixture of cryogenic SBR granules intermixed with sand. Rainfall lands on the surface of the artificial field, flows downward through the infill layer and rock/gravel layer, collects in the subsurface drainage system, and ultimately is discharged into the storm drain system. The concern is that stormwater in contact with the crumb rubber layer would result in the release of contaminants, such as volatile organic compounds and/or metals into the storm drain system.

One study specifically evaluated stormwater drainage water quality from synthetic turf athletic fields manufactured by FieldTurf (Milone & MacBroom 2008). Grab samples of stormwater that infiltrated the field surface and migrated downward through the infill material, polyethylene fiber backing, and into the underlying stone were obtained prior to discharge into the storm drain system. Aquatic toxicity testing showed 100 percent survival (i.e., the drainage water was non-toxic to aquatic organisms). Results from the metals analysis showed no lead, selenium, or cadmium were present in the drainage water. Zinc was present at a maximum concentration of 0.031 mg/l, which is much less than the maximum contaminant level for drinking water of 5.0 mg/l. Metals were also analyzed using the Synthetic Precipitation Leaching Procedure to simulate materials exposed to acidic rainfall. The results indicated that metals could theoretically leach from the crumb rubber but the concentrations in the leachate are within the range that is expected to leach from native soil.

Another study of water quality and artificial turf fields showed no volatile or semi-volatile organic compound concentrations from stormwater samples collected after drainage through the turf layers (DEC 2009). In addition, potential water quality impacts would be reduced through the dilution of the runoff as it mingles with other runoff from the site. Also, toxicity and the leaching potential of the turf layers decline through weathering and extended exposure to the environment. The stormwater runoff at the project site would also undergo treatment with a continuous deflection system unit and underground infiltration system prior to discharge to the City's storm drain system. In summary, the results of the water quality studies and the design of storm drain system to include on-site treatment prior to discharge to the City's storm drain system would ensure that no adverse water quality impacts would occur with the discharge of stormwater runoff from the synthetic turf field's subdrain system.

During the construction phase, the proposed project would be required to prepare a SWPPP and implement erosion and sediment control measures, thus limiting the discharge of pollutants from the site (Mitigation Measure HYD-3). During operation, the project would implement LID and BMP measures that minimize the amount of stormwater runoff and associated pollutants. Studies of drainage from FieldTurf synthetic fields did not indicate any pollutants of concern in the stormwater runoff. Therefore, development of the proposed project would not result in substantial additional sources of polluted runoff and impacts would be less than significant.

5.5.4 Cumulative Impacts

The geographic area for addressing cumulative hydrology impacts is the drainage area for the Newport Bay Watershed. Other planned and future projects in the Newport Bay Watershed could result in increased amounts of impervious surfaces, resulting in increased runoff from the project sites. The runoff from cumulative projects could also contribute to pollutant loading in the storm drain system with eventual discharge to Newport Bay and the Pacific Ocean.

However, as is the case for the proposed project, future projects would be required to prepare and implement WQMPs and install BMPs and LID features that would minimize runoff from those sites. New development and redevelopment projects would also be required to demonstrate that stormwater volumes could be managed by downstream conveyance facilities and would not induce flooding. New projects also would be required to comply with the City's standard conditions of approval, regulations, and ordinances regarding water quality and MS4 permit requirements. Each project that disturbs more than one acre of land would be required to develop a SWPPP and all regulated projects would be required to develop a WQMP. Potential changes related to water quality, stormwater flows, drainage, impervious surfaces, and flooding would be minimized by implementation of stormwater control measures, retention, infiltration, and LID measures. All projects would be subject to review and approval by the City to ensure that appropriate BMPs and treatment measures are implemented to avoid adverse impacts to surface water quality. In consideration of the preceding factors, cumulative hydrology and water quality impacts would be rendered less than considerable, and therefore not cumulatively significant.

5.5.5 Existing Regulations and Standard Conditions

Federal

- United States Code, Title 33, Sections 1251 et seq.: Clean Water Act
- Code of Federal Regulations Title 40 Parts 122 et seq.: National Pollutant Discharge Elimination System (NPDES)

State

- California Water Code Sections 13000 et seq.: Porter-Cologne Water Quality Act
- Order No. 2009-0009-DWQ, Statewide Construction General Permit, State Water Resources Control Board, as amended by 2010-0014-DWQ and 2012-0006-DWQ
- Title 24 Green Building Standards Code

Regional

- Orange County Municipal NPDES Storm Water Permit (Order No. R8-2009-0030, Amended by Order No. R8-2010-0062)
- 2003 Drainage Area Management Plan (DAMP)
- 2011 Model Water Quality Management Plan

5.5.6 Level of Significance Before Mitigation

Without mitigation, these impacts would be potentially significant:

- Impact 5.5-1 Development of the proposed project could alter the existing drainage pattern or contribute runoff water that could exceed the capacity of the existing or planned stormwater drainage system.

- Impact 5.5-2 Compliance with the required Construction General Permit would ensure that development of the proposed project would not result in substantial additional sources of polluted runoff.

5.5.7 Mitigation Measures

Impact 5.5-1

HYD-1 Prior to grading, the District shall prepare a water quality management plan (WQMP) for the project. The WQMP shall be submitted and approved by the City of Newport Beach Community Development Department, Building Division. The WQMP shall include appropriate BMPs and LID measures to ensure that project runoff is treated and temporarily detained in accordance with the requirements of the Orange County MS4 Permit and the Orange County Drainage Area Master Plan.

HYD-2 Future site grading and construction activities shall comply with drainage controls imposed by the applicable municipal code requirements for the City of Newport Beach.

Impact 5.5-2

HYD-3 Prior to grading, a Storm Water Pollution Prevention Plan (SWPPP) and Notice of Intent (NOI) to comply with the Construction General Permit shall be prepared, submitted to the State Water Resources Control Board (SWRCB), and made part of the construction program. The SWPPP shall detail measures and practices that will be in effect during construction to minimize the project's impact on water quality and minimize the potential for erosion and sedimentation.

5.5.8 Level of Significance After Mitigation

Implementation of existing regulations and mitigation measures HYD-1, HYD-2, and HYD-3 would ensure that impacts to water quality and hydrology are reduced to a less than significant level. No significant and unavoidable impact would remain.

5.5.9 References

Department of Environmental Conservation (DEC). 2009. An Assessment of Chemical Leaching, Releases to Air and Temperature at Crumb-Rubber Infilled Synthetic Turf Fields. State of New York.

Department of Water Resources (DWR). 2003. California's Groundwater Bulletin 118. Coastal Plain of Orange County Groundwater Basin.

———. 2004, February 27 (updated). California's Groundwater Bulletin 118. South Coast Hydrologic Region, Coastal Plain of Orange County Groundwater Basin. http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/8-1.pdf.

FieldTurf. 2016 (accessed). FieldTurf, A Tarkett Sports Company: Crumb Rubber. http://www.fieldturf.com/fr/infill-systems/crumb-rubber

Milone & MacBroom. 2008, December. Evaluation of Stormwater Drainage Quality from Synthetic Turf Athletic Fields.

Newport Beach, City of. 2006, July 25. Hydrology and Water Quality. Section 4.7 of General Plan Environmental Impact Report. http://newportbeachca.gov/PLN/General_Plan/GP_EIR/Volume_1/12_Sec4.7_Hydrology.pdf.

———. 2016a, June. 2015 Urban Water Management Plan, Final Draft. Prepared by ARCADIS.

———. 2016b. City of Newport Beach Standard Design Requirements

Orange County. 1996 (addendum). Orange County Hydrology Manual. Original release, 1986.

———. 2013. Technical Guidance Document for the Preparation of Conceptual/Preliminary and/or Project Water Quality Management Plans.

Orange County Water District (OCWD). 2015, June 17. Orange County Water District Groundwater Management Plan 2015 Update. http://www.ocwd.com/media/3622/groundwatermanagementplan2015update_20150624.pdf.

Santa Ana Regional Water Quality Control Board (SARWQCB). 1995. Water Quality Control Plan (Basin Plan), Santa Ana River Basin (8).

State Water Resources Control Board (SWRCB). GeoTracker. https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=newport+beach%2C+ca.

US Environmental Protection Agency (USEPA). 2012, September 26. Water Permitting 101. http://www.epa.gov/npdes/pubs/101pape.pdf.

———. 2016, November 17 (accessed). Federal Research on Recycled Tire Crumb Used on Playing Fields. https://www.epa.gov/chemical-research/federal-research-recycled-tire-crumb-used-playing-fields.

This page intentionally left blank.

5.6 NOISE

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for implementation of the Corona del Mar Middle and High School (CdM MS/HS) Sports Field Project to result in noise impacts in the City. This section also presents the fundamentals of sound; examines federal, state, and local noise guidelines, policies, and standards; reviews noise levels at existing receptor locations; evaluates potential noise impacts associated with the proposed project; and provides mitigation to reduce noise impacts at sensitive residential locations. The evaluations use procedures and methodologies as specified by the California Department of Transportation (Caltrans), the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and the District. The pertinent noise calculation/modeling summary sheets are in Appendix F of this Draft EIR.

5.6.1 Environmental Setting

5.6.1.1 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 is described in terms of amplitude or loudness, frequency or pitch, and time variations or duration.

Amplitude

The range of pressures that causes airborne vibrations (i.e., sound) is quite large and would be cumbersome to measure lineally. Therefore, noise is measured on a logarithmic scale, which has a more manageable range of numbers, and a decibel (dB) is the standard unit for measuring sound pressure amplitude.[1]

On a logarithmic scale, an increase of 10 dB is 10 times more intense than 0 dB, 20 dB is 100 times more intense, and 30 dB is 1,000 times more intense. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. 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 by 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. These relationships are summarized in Table 5.6-1.

[1] The commonly held threshold of audibility is 20 micropascals, and the threshold of pain is around 200 million micropascals, a ratio of one to 10 million. By converting these pressures to a logarithmic scale (i.e., decibels), the range becomes a more convenient 0 dB to 140 dB.

5. Environmental Analysis
NOISE

Table 5.6-1 Noise Perceptibility

± 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 and Hansen 2009.

Frequency

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hertz (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 term "A-weighted" refers to a filtering of the noise signal in a manner corresponding to the way the human ear perceives sound. 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.

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 5.6-2 shows typical noise levels from familiar noise sources.

Table 5.6-2 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: Caltrans 2009.

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 events and their repetitiveness
- Time of day

5. Environmental Analysis
NOISE

Time Variation

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.

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 4.5 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 would result in permanent cell damage, which is the main driver for employee hearing protection regulations in the workplace. When the noise level reaches 120 dBA, an unpleasant "tickling" sensation occurs in the human ear; even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. A sound level of 160 to 165 dBA will result in dizziness or loss of equilibrium. In comparison, for community environments, the ambient or background noise problem is widespread, though 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.

Loud noise can be annoying and it can have negative health effects (EPA, 1978). The effects of noise on people can be listed in three general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction.
- Interference with activities such as speech, sleep, learning.
- Physiological effects such as startling and hearing loss (both temporary and permanent).

In most cases, environmental noise produces effects in the first two categories only. However, unprotected workers in some industrial work settings may experience noise effects in the last category.

5.6.1.2 CHARACTERISTICS OF VIBRATION

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.

Like noise, vibration is transmitted in waves, but through the earth or solid objects. Unlike noise, vibration is typically of a frequency that is felt, rather than heard. As with noise, vibration can be described by both its amplitude and frequency.

Amplitude

Amplitude may be characterized in three ways: displacement, velocity, and acceleration. Vibration displacement is the distance that a point on a surface moves away from its original static position. The instantaneous speed that a point on a surface moves is the velocity, and the rate of change of the speed is the acceleration. 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.

The units for PPV and RMS velocity are normally inches per second (in/sec). However, vibration is often presented and discussed in dB units in order to compress the range of numbers. In this analysis, PPV and RMS velocities are in in/sec, and vibration levels are in dB relative to 1 micro-inch per second (abbreviated as VdB). Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Man-made vibration problems are therefore usually confined to relatively short distances from the source (500 to 600 feet or less).

Frequency

Vibrations also vary in frequency and this affects perception. Typical construction vibrations fall in the 10 to 30 Hz range and usually occur around 15 Hz. Traffic vibrations exhibit a similar range of frequencies; however, due to their suspension systems, buses often generate frequencies around 3 Hz at high vehicle speeds. It is less common, but possible, to measure traffic frequencies above 30 Hz.

Propagation

The way in which vibration is transmitted through the earth is called propagation. Propagation of groundborne vibrations is complicated and difficult to predict because of the endless variations in the soil and rock through which waves travel. There are three main types of vibration propagation: surface, compression and shear waves. Surface waves, or Raleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. Compression waves, or P-waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e. in a "push-pull" fashion). P-waves are analogous to airborne sound waves. Shear waves, or S-waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or "side-to-side and perpendicular to the direction of propagation." As vibration waves propagate from a source, the energy is spread over an ever-increasing area such that the energy level striking a given point is reduced with the distance from the energy source. This geometric spreading loss is inversely proportional to the square of the distance. Wave energy is also reduced with distance as a result of material damping in the form of internal friction, soil layering, and void spaces. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

Psychological and Physiological Effects of Noise

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 5.6-3 displays the human response and the effects on buildings resulting from continuous vibration (in terms of various levels of PPV).

Table 5.6-3 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: Caltrans 2004.

Human response to ground vibration has been correlated best with the velocity of the ground, typically expressed in terms of the vibration decibel of VdB.[2] The FTA has developed rational vibration limits that can be used to evaluate human annoyance to groundborne vibration. These criteria are primarily based on experience with rapid transit and commuter rail systems (FTA 2006). Railroad and transit operations are potential sources of substantial ground vibration depending on distance, the type and the speed of trains, and the type of track. Trains generate substantial vibration due to their engines, steel wheels, heavy loads, and wheel-rail interactions.

Similarly, construction operations generally include a wide range of activities that can generate groundborne vibration, which varies in intensity. In general, blasting and demolition as well as pile driving and vibratory compaction equipment generate the highest vibrations. Because of the impulsive nature of such activities, PPV is used to measure and assess groundborne vibration and assess the potential of vibration to induce structural damage and annoyance for humans. Vibratory compactors or rollers, pile drivers, and pavement breakers can generate perceptible amounts of vibration at up to 200 feet. Heavy trucks can also generate groundborne vibrations, which can vary, depending on vehicle type, weight, and pavement conditions. Potholes, pavement joints, discontinuities, differential settlement of pavement, all increase the vibration levels from vehicles passing over a road surface. Construction vibration is normally of greater concern than vibration from normal traffic flows on streets and freeways with smooth pavement conditions (Caltrans 2004).

5.6.1.3 REGULATORY FRAMEWORK

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise.

[2] The reference velocity is 1×10^{-6} in/sec RMS, which equals 0 VdB, and 1 in/sec equals 120 VdB.

5. Environmental Analysis
NOISE

Federal Regulations

U.S. Federal Transit Administration

Many local jurisdictions do not have specific limits or thresholds for groundborne vibration. The FTA provides criteria for acceptable levels of ground-borne vibration for various types of special buildings that are sensitive to vibration and these guidelines are often used to evaluate vibration impacts during construction. The construction-focused guidelines identify that an impact would occur if construction activities generate vibration that is strong enough to (a) physically damage buildings or (b) cause undue annoyance at sensitive receptors.

Vibration-Related Human Annoyance. The human reaction to various levels of vibration is highly subjective and varies from person to person. Table 5.6-4 shows the FTA's vibration criteria to evaluate vibration-related annoyance due to resonances of the structural components of a building. These criteria are based on extensive research that suggests humans are sensitive to vibration velocities in the range of 8 to 80 Hz. For construction activities—presumed to occur only during daytime hours—would be 78 VdB at residential land uses.

Table 5.6-4 Groundborne Vibration Criteria: Human Annoyance

Land Use Category	Maximum Vibration Level (VdB)	Description
Workshop	90	Distinctly felt vibration. Appropriate to workshops and non-sensitive areas
Office	84	Felt vibration. Appropriate to offices and non-sensitive areas.
Residential – Daytime	78	Barely felt vibration. Adequate for computer equipment.
Residential – Nighttime	72	Vibration not felt, but groundborne noise may be audible inside quiet rooms.

Source: FTA 2006.
Note: Maximum Vibration Level (in VdB) is the RMS velocity level in decibels, as measured in 1/3-octave bands of frequency over the frequency ranges of 8 to 80 Hz. RMS is the abbreviation for root-mean-square.

Vibration-Related Architectural Damage. The level at which groundborne vibration is strong enough to cause architectural damage has not been determined conclusively. However, structures amplify groundborne vibration, and wood-frame buildings such as typical residential structures are more affected by ground vibration than heavier buildings. The most conservative estimates are reflected in the FTA standards, shown in Table 5.6-5. The threshold of 0.2 PPV will be applied to typical residential structures surrounding the project site.

Table 5.6-5 Groundborne Vibration Criteria: Architectural Damage

Building Category	PPV (in/sec)	Lv (VdB)
I. Reinforced concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

Source: FTA 2006.
Note: Lv (VdB): Lv is the velocity level in decibels, as measured in 1/3-octave bands of frequency over the frequency ranges of 8 to 80 Hz.

State Regulations

The California Department of Health Services' Office of Noise Control has studied the correlation of noise levels and their effects on various land uses. The State of California Interior and Exterior Noise Standards are shown in Table 5.6-6.

Table 5.6-6 State of California Interior and Exterior Noise Standards

Categories	Land Use	CNEL (dBA)	
		Interior[1]	Exterior[2]
Residential	Single and multi-family, duplex	45[3]	65
	Mobile homes	–	65[4]
Commercial	Hotel, motel, transient housing	45	–
	Commercial retail, bank, restaurant	55	–
	Office building, research and development, professional offices	50	–
	Amphitheater, concert hall, auditorium, movie theater	45	–
	Gymnasium (Multi-purpose)	50	–
	Sports Club	55	–
	Manufacturing, warehouse, wholesale, utilities	65	–
	Movie Theaters	45	–
Institutional/ Public	Hospital, school classrooms/playground	45	65
	Church, library	45	–
Open Space	Parks	–	65

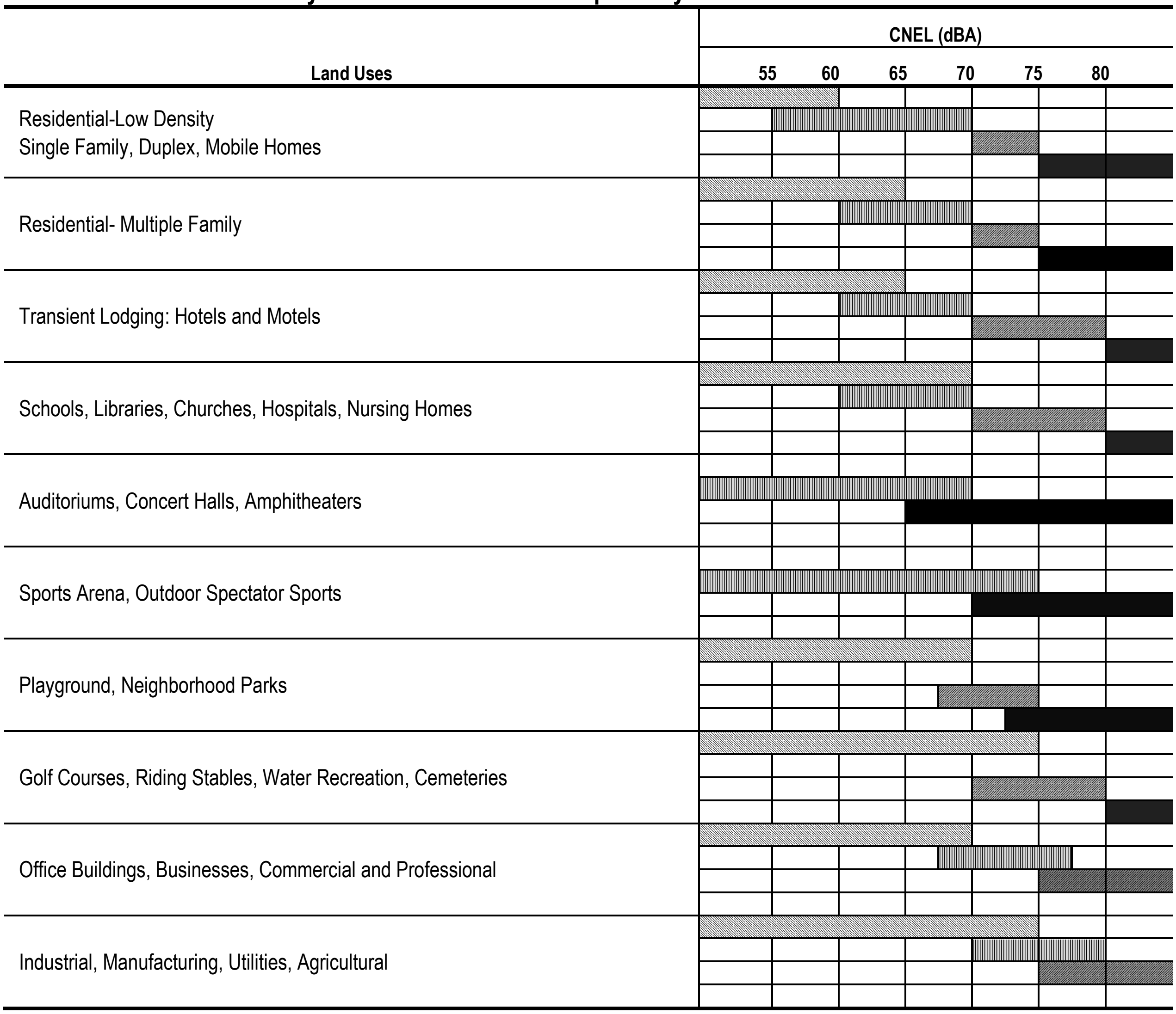
1 Indoor environment excluding: bathrooms, kitchens, toilets, closets, and corridors
2 Outdoor environment limited to:
- Private yard of single-family dwellings • Multi-family private patios or balconies accessed from within the dwelling (Balconies 6 feet deep or less are exempt) • Mobile home parks • Park picnic areas • School playgrounds • Hospital patios

3 Noise level requirement with closed windows, mechanical ventilation, or other means of natural ventilation shall be provided as per Chapter 12, Section 1205 of the Uniform Building Code.
4 Exterior noise levels should be such that interior noise levels will not exceed 45 dBA CNEL.

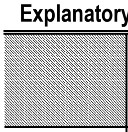
The California Office of Noise Control (ONC) has generated a land use versus noise level compatibility table as a tool for urban planners to gauge the compatibility of land uses relative to existing and future noise levels. Table 5.6-7, reproduces this ONC land use compatibility chart for community noise. This table identifies "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable" categories of noise levels for various land uses. A conditionally acceptable or a normally unacceptable designation implies new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use is made and needed noise insulation features are incorporated in the design. By comparison, a normally acceptable designation indicates that standard construction can occur with no special noise reduction requirements.

5. Environmental Analysis
NOISE

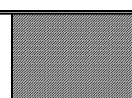
Table 5.6-7 Community Noise and Land Use Compatibility



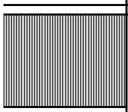
Explanatory Notes



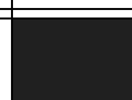
Normally Acceptable:
With no special noise reduction requirements assuming standard construction.



Normally Unacceptable:
New construction is discouraged. If new construction does not proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.



Conditionally Acceptable:
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design.



Clearly Unacceptable:
New construction or development should generally not be undertaken.

Source: California Office of Noise Control 1976.

City of Newport Beach Noise Standards

Noise Element

The City of Newport Beach General Plan Noise Element discusses the effects of noise exposure on the population and sets goals designed to protect residents and businesses from excessive and persistent noise intrusions. The noise element contains noise thresholds for developments located adjacent to mobile or transportation noise sources and thresholds for stationary noise sources. The City applies the state's Community Noise and Land Use Compatibility standards (consistent with Table 5.6-8),[3] to assess the compatibility of new development with ambient noise. The standards included in the noise element will only apply to long-term operational noise.

Table 5.6-8 City of Newport Beach Exterior Noise Standards

Noise Zone	Time Interval	Maximum Daytime Noise Levels (dBA)	
		L_{eq}	L_{max}
Zone I – Single-, two-, or multiple-family residential	7 AM to 10 PM	55	75
	10 PM to 7 AM	50	70
Zone II – Commercial	7 AM to 10 PM	65	85
	10 PM to 7 AM	60	80
Zone III – Residential portions of mixed use properties	7 AM to 10 PM	60	80
	10 PM to 7 AM	50	70
Zone IV – Industrial or manufacturing	7 AM to 10 PM	70	90
	10 PM to 7 AM	70	90
Institutional	7 AM to 10 PM	55	75
	10 PM to 7 AM	50	70

Sources: Newport Beach Municipal Code, Section 10.26.025, Exterior Noise Standards; Newport Beach General Plan Noise Element, Table N3, Noise Standards.
Notes: These noise standards do not apply to HVAC systems or construction pursuant to Section 10.26.035 of the municipal code.
In the event the ambient noise level exceeds the noise standard, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.
The Noise Zone III standard shall apply to that portion of residential property falling within 100 feet of a commercial property, if the intruding noise originates from that commercial property.
If the measurement location is on boundary between two different noise zones, the lower noise level standard applicable to the noise zone shall apply.

As with the state's guidelines, the Land Use Noise Compatibility Matrix of the Noise Element identifies clearly acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable noise levels for various land uses (with the associated requirement for a detailed analysis of the noise reduction requirements and needed noise insulation features) for projects proposed to be within conditionally acceptable or normally unacceptable noise zones. In no case would it be desirable for any land use to have noise exceeding the highest normally unacceptable noise level shown in Table 5.6-8. Thus, for the purpose of residential uses, the highest exterior noise level is 65 dBA CNEL. It should be noted that California requires that interior noise levels in multifamily residential uses not exceed 45 L_{dn}. This is commonly used as an interior standard for all residential uses and is required under the California Administrative Code, Title 24, Part 2.

[3] This set of compatibility standards are summarized in Table N2 of the City's Noise Element.

5. Environmental Analysis
NOISE

In addition to the land use noise compatibility guidelines in the noise element, the City has adopted community noise control policies and standards as part of its municipal code in order to limit unnecessary, excessive, and annoying noise in the City. These noise standards are discussed below and displayed in Table 5.6-8.

The following discussion provides a summary of the noise element goals and policies as they apply to regulatory guidance and significance criteria for the proposed project:

- **Goal N1, Noise Compatibility:** Minimized land use conflicts between various noise sources and other human activities.
    - **Policy N 1.1, Noise Compatibility of New Development:** Require that all proposed projects are compatible with the noise environment through use of Table N2 (presented here as Table 5.6-8), and enforce the exterior noise standards shown in Table N3 (see Table 5.6-9).
    - **Policy N 1.2, Noise Exposure Verification for New Development:** Applicants for proposed projects that require environmental review and are located in areas projected to be exposed to a CNEL of 60 dBA and higher—as shown on Figure N4, Figure N5, and Figure N6 of the noise element—may conduct a noise measurement field survey or other modeling in a manner acceptable to the City to provide evidence that the depicted noise contours do not adequately account for local noise exposure circumstances due to such factors as topography, variation in traffic speeds, and other applicable conditions. These findings shall be used to determine the level of exterior or interior noise attenuation needed to attain an acceptable noise exposure level and the feasibility of such mitigation when other planning considerations are taken into account.
    - **Policy N 1.8, Significant Noise Impacts:** Require the employment of noise mitigation measures when a significant noise impact is identified for new development impacting existing sensitive uses, as presented in Table 5.6-9.

Table 5.6-9 City of Newport Beach Incremental Noise Impact Criteria for Noise-Sensitive Uses

Existing Noise Exposure (dBA CNEL)	Allowable Combined Noise Exposure (dBA CNEL)	Allowable Noise Exposure Increment (dNA CNEL)
55	58	3
60	62	2
65	66	1
70	71	1
75	75	0

Source: City of Newport Beach General Plan and General Plan EIR. Adopted November 2006.

- **Goal N4, Minimization of Non-transportation-Related Noise:** Minimize non-transportation-related noise impacts on sensitive noise receptors.
  - **Policy N 4.1, Stationary Noise Sources:** Enforce interior and exterior noise standards outlined in Table N3 (Table 5.6-6) and in the municipal code to ensure that sensitive noise receptors are not exposed to excessive noise levels from stationary noise sources, such as HVAC equipment.
  - **Policy N 4.6, Maintenance or Construction Activities:** Require the enforcement of the Noise Ordinance noise limits and limit hours of maintenance or construction activity in or adjacent to residential areas, including noise that results from in-home hobby or work related activities.
- **Goal N5,** Minimize excessive construction-related noise.
  - **Policy N 5.1, Limiting Hours of Activity:** Enforce the limits on hours of construction activity.

Municipal Code (Noise Ordinance)

The City's Noise Ordinance (Newport Beach Municipal Code Chapter 10.26) is designed to protect people from objectionable non-transportation noise sources such as music, machinery, pumps, and air conditioners. These standards do not gauge the compatibility of developments in the noise environment, but provide restrictions on the amount and duration of noise generated at a (source) property, as measured at the receiving property. The details on noise level measurement locations are in Section 10.26.055.

Stationary (Non-transportation) Noise

The City applies the Noise Ordinance standards (Section 10.26.025, Exterior Noise Standards) to non-transportation, stationary noise sources. These standards were summarized above in Table 5.6-9 (and are included as the exterior noise standards in Table N3, Noise Standards, of the General Plan Noise Element). These standards are not applicable to mobile noise sources (such as heavy trucks) that are traveling on public roadways. Control of the mobile noise sources on public roads is preempted by federal and state laws.

Sound ratings of new HVAC equipment installed in Newport Beach are reviewed during plan check and tested in the field after installation. According to Section 10.26.045, new permits for HVAC equipment in or adjacent to residential areas shall be issued only where the sound rating of the proposed equipment does not exceed 55 dBA and it is installed with a timing device that will deactivate the equipment between 10 PM and 7 AM.

Construction Noise

The City realizes that the control of construction noise is difficult and therefore provides an exemption for this type of noise. According to Section 10.26.035, Exemptions, noise sources associated with construction, repair, remodeling, demolition, or grading of any real property are exempt from the noise level limits shown in Table 5.6-9, above. Such activities shall instead be subject to the provisions of Section 10.28.040, Construction Activity: Noise Regulations. Construction is permitted on weekdays between 7:00 AM and 6:30 PM and on Saturdays between 8:00 AM and 6:00 PM. Construction is not permitted on Sundays or any federal holiday. Exceptions to these hours can be made when the maintenance, repair, or improvement cannot feasibly be conducted during normal business hours, as outlined in Section 10.28.040.

City of Newport Beach Vibration Standards

Structures amplify groundborne vibration, and wood-frame buildings, such as typical residential structures, are more affected by ground vibration than heavier buildings. There are no nearby land uses other than residential that would be expected to be under consideration for vibration effects (see also section 5.6.1.4 below for additional information). While the City's municipal code includes a definition for vibration, it does not have specific limits or thresholds for vibration. Likewise, the City's noise element does not have specific vibration thresholds. However, the EIR for the 2006 City of Newport Beach General Plan Update established a limit for vibration annoyance levels at residential uses, but no standards or thresholds were established for architectural damage from vibrational energy.

Vibration-Related Annoyance

The 2006 General Plan EIR established a limit of 72 VdB for vibration annoyance levels at residential uses, which will be used as the significance threshold in this analysis. For comparison purposes, the FTA's annoyance criteria are shown in Table 5.6-4, as they are frequently used as significance thresholds. Although the FTA residential-daytime threshold is 78 VdB for vibrational annoyance, it should be noted that the Newport Beach General Plan EIR conservatively applied the residential-nighttime threshold of 72 VdB for all circumstances of vibrational energy, including construction activities, which would almost never occur during the nighttime period (10 PM to 7 AM), with the possible exception of emergency repair work.

Vibration-Related Architectural Damage

In lieu of damage standards in either the City's municipal code or noise element, FTA provides criteria for acceptable levels of groundborne vibration for various types of special buildings that are sensitive to vibration (FTA 2006). The level at which groundborne vibration is strong enough to cause architectural damage has not been determined conclusively. The most conservative estimates are reflected in the FTA standards in Table 5.6-5. The nearest vibration-sensitive receptors would be the Bluffs residential community to the north, and the residential community to the east, both of which should not be exposed to greater than 0.02 PPV, per the FTA criterion for non-engineering timber and masonry buildings.

5.6.1.4 EXISTING NOISE ENVIRONMENT

Existing Land Uses

On-Campus

The project site is in a predominantly residential area and is subject to noise from transportation and stationary sources. The existing turf field and synthetic rubber track do not have permanent bleachers, and the athletic field is used for smaller football games (which do not produce notable crowd noise) as well as by other athletic organizations in the community.

The area to be disturbed by the proposed project is bordered by student parking, tennis courts, and a weight room building to the south, and a multipurpose turf athletic field to the west. Beyond the project site's northern boundary, across Vista del Oro, are 2-story residential units. Beyond the eastern boundary, across Eastbluff Drive, are single-family residential units on a slope. This upward slope continues eastward to Jamboree Road.

Off-Campus

Residential units are to the north of Vista del Oro, to the east of Eastbluff Drive, and to the west of Mar Vista Drive. Our Lady Queen of Angels Catholic Church and School are to the south of Mar Vista Drive—the main church building is approximately 1,600 feet from the center of the CdM sports field, and the school is approximately 1,300 feet from it. The nearest commercial/retail uses are at the Eastbluff Village Center; approximately 1,600 feet to the north of the sports field. Beyond approximately 2,000 feet to the south and west is open space, and Upper Newport Bay is beyond the open space to the west. Other uses in the area include a country club near the southeast corner of Eastbluff Drive and Jamboree Road (nearly half a mile from the project site), Eastbluff Elementary School (approximately 2,000 feet from the project site), and Eastbluff Park (approximately 1,500 feet north of the project site).

Of these nearby land uses, Eastbluff Elementary School would be considered primarily a daytime sensitive noise receptor, since few evening events would be expected to coincide with events at the proposed CdM sports field facility. On occasion, however, some evening events may occur at the church complex at the same time as sports field events, but such overlap would be expected to be seasonal and rare.

Ambient Noise Measurement

To ascertain the existing noise at and adjacent to the sports field), noise monitoring was conducted by PlaceWorks staff in September of 2016.[4] School was in normal session during this time period.

Short-term measurements were taken at four locations for a minimum period of 15 minutes on September 16, 2016, between the hours of 3:00 PM and 6:00 PM. Long-term measurements were taken from Thursday, September 15, to Saturday, September 17, 2016, and at one location from Wednesday, November 30, to Friday, December 2, 2016. The field work was conducted during normal school days, with a focus on evening noise environments (such as during a typical football game at the proposed sports field). The general noise environment around the school is a combination of local and distant roadway noise, aircraft noise, general urban noise, chirping birds and barking dogs, rustling vegetation, activities at the school (such as student voices), and various activities in the neighborhood (e.g., people talking, lawnmowers).

Noise monitoring was performed using Larson-Davis Model 814 and 820 integrating/logging sound level meters, all of which satisfy the American National Standards Institute (ANSI) standard for Type 1 general environmental noise measurement instrumentation. The meters were programmed to record noise levels with the "slow" time constant and using the "A" weighting filter network. The meters were field calibrated immediately prior to the first set of readings. The calibration was rechecked immediately after the conclusion

[4] The measurements at one location were repeated in late November of 2016, due to equipment malfunction during the original survey.

of the readings and no notable meter "drift" was noted (i.e., less than ½ dB deviation). This work effort included five short-term samples (of 15-minute duration) and five 24-hour, long-term noise readings. For all short-term measurements, the sound level meter and microphone were mounted on a tripod five feet above the ground and equipped with a windscreen. For long-term measurements, the microphone and windscreen were attached to a fence or other solid support. Noise measurement locations are described below and shown in Figure 5.6-1, *Ambient Noise Measurement Locations*.

N-1 (short-term). Location 1 was approximately 2,500 feet directly northwest of the project site, in a park area between two sections of residential buildings, approximately 150 feet west of the Eastbluff Elementary School boundary. A 15-minute noise measurement began at 4:41 PM on Friday, September 16, 2016. The air temperature was 76°F with 58 percent relative humidity (RH), and winds were between 1 and 2 miles per hour (mph).

Nearby land uses include residential communities to the north and south of the monitoring location, Eastbluff Elementary School to the east, and the Upper Newport Bay Nature Preserve to the west. The noise environment of this site was characterized primarily by operations in the residential community and by aircraft flyovers directly above the Upper Newport Bay Nature Preserve. As shown in Table 5.6-10, the noise level throughout this 15-minute measurement ranged from 39 to 78 dBA.[5] The L_{max} in this case (78 dBA) represents the sound level during an aircraft flyover, and the L_{min} (39 dBA) represents the typical ambient noise levels without aircraft noise.

N-2 (short-term). Location 2 was approximately 2,250 feet west-northwest of the project site on a bridge on Vista del Oro between Vista Caudal and Vista Dorado. A 15-minute noise measurement began at 4:08 PM on Friday September 16, 2016; the air temperature was 83°F with 46 percent RH, and winds were about 1 mph.

The monitoring location was surrounded by residential developments, with the Upper Newport Bay Nature Preserve approximately 750 feet to the west, beyond the farthest residences. The noise environment of this site was characterized primarily by operations in the residential community, including property maintenance; by more distant traffic along Vista del Oro; and by aircraft flyovers directly above the Upper Newport Bay Nature Preserve. As shown in Table 5.6-10, the noise level ranged from 39 to 78 dBA. The L_{max} in this case (76 dBA) represents the sound level during an aircraft flyover, and the L_{min} (39 dBA) represents the ambient noise levels without aircraft or other intermittent sources (i.e., car drive-bys).

Table 5.6-10 Short-Term Noise Measurements Summary

Monitoring Location	Description	15-min L_{min}	15-min L_{eq}	15-min L_{max}
N-1	West of Eastbluff Elementary School	39	60	78
N-2	West side of The Bluffs Residential Community	39	61	76
N-4	Park area in Res. Community NE of project site	44	53	66
N-10	Residential Community South of the project site	49	64	82

Note: Noise sampling conducted by PlaceWorks staff on Friday, September 16, 2016, for a minimum of 15 minutes at each site with a Larson Davis 820 sound level meter.

[5] Decibel referenced to 20 micropascals.

Figure 5.6-1 - Ambient Noise Measurement Locations

School Boundary

Sports Field Boundary

N-1 Noise Measurement Locations (10)

0 800
Scale (Feet)

Base Map Source: Google Earth Pro, 2016

This page intentionally left blank.

N-4 (short-term). Location 4 was approximately 2,000 feet directly northeast of the project site, at the south end of a park area near the edge of a residential community (bordered by Jamboree Road), about 300 feet west of Jamboree Road. A 15-minute noise measurement began at 5:13 PM on Friday September 16, 2016; the air temperature was 76°F with 61 percent RH, and winds were between 1 and 2 miles per hour.

Nearby land uses include the park area directly to the north of the monitoring location and the residential community directly to the south and also surrounding the park area. The noise environment was characterized primarily by operations in the park area (dogs barking, kids playing), by operations in the residential community, by vehicle noise along Jamboree Road and other thoroughfares (including Alta Vista Drive), and by aircraft fly-over noise.

N-5 (long-term). Location 5 was surrounded by a residential community and approximately 1,500 feet west of the proposed project site. The noise monitor was at a tree just north of the intersection of Vista del Oro and Vista Caudal. A 45-hour noise measurement began at 3:59 PM on Thursday September 15, 2016; the air temperature was 76°F with 48 percent RH, and winds between 1 and 2 mph. The noise monitor was picked up at 2:02 PM on Saturday, September 17, and the air temperature was 84°F with 51 percent RH, and winds were approximately 1 mph.

Nearby land uses are mostly residential, except for the CdM campus and athletic fields about 400 feet east of the monitoring location. The noise environment of this site was characterized primarily by operations at the school (children playing, athletic events), by operations in the residential community, by vehicle noise along Vista del Oro, and by aircraft noise.

N-6 (long-term). Location 6 was surrounded by a residential community to the north and the CdM campus to the south. It was at a tree approximately 250 feet north of the westernmost field goal (beyond Vista del Oro). A 45-hour noise measurement began at 3:41 PM on Thursday September 15, 2016; the air temperature was 77°F with 55 percent RH, and winds between 2 and 3 mph. The noise monitor was picked up at 1:24 PM on Saturday, September 17, and the air temperature was 79°F with 54 percent RH, and winds between 2 to 4 mph.

The monitoring location is surrounded by residential and educational developments. The noise environment was characterized primarily by operations at the school (children playing, athletic events), by operations in the residential community, by vehicle noise along Vista del Oro, and by aircraft noise.

N-7 (long-term). Location 7 was surrounded by a residential community to the east and the CdM campus to the west and attached to a fence along the east side of Eastbluff Drive. The noise monitor was on top of the steep grade along Eastbluff Drive (elevated about 20 feet above street), approximately 200 feet directly east of the easternmost field goal. A 45-hour noise measurement began at 3:25 PM on Thursday September 15, 2016; the air temperature was 78°F with 54 percent RH, and winds between 2 and 3 mph. The noise monitor was picked up at 1:11 PM on Saturday, September 17; the air temperature was 78°F with 65 percent RH, and winds were approximately 3 mph.

5. Environmental Analysis
NOISE

The monitoring location is surrounded by residential and educational developments. The noise environment of this site was characterized primarily by vehicle noise along Eastbluff Drive as well as by operations at the school (children playing, athletic events) and in the nearby residential community. Aircraft noise was also a contributor at this location.

N-8 (long-term). Location 8 is at the edge of a residential community (bordered by Jamboree Road) about 1,400 feet directly east of the project site. The noise monitor was attached to a light pole at the end of Alder Place. A 45-hour noise measurement began at 4:55 PM on Thursday September 15, 2016; the air temperature was 79°F with 46 percent RH, and winds approximately 1 mph. The noise monitor was picked up at 2:36 PM on Saturday, September 17; the air temperature was 81°F with 56 percent RH, and winds were approximately 1 mph.

The monitoring location is surrounded by a residential community. The noise environment of this site was characterized primarily by operations in the residential community, by vehicle noise along Jamboree Road, and by aircraft fly-over noise.

N-9 (long-term). Location 9 was surrounded by a residential community and about 200 feet from the border of the CdM campus, attached to a tree between two cul-de-sacs, Barranca and San Bruno. Due to equipment failure during the September survey, a 48-hour noise measurement was repeated from Wednesday, November 30, to Friday, December 2, 2016. The monitor was started at 4:26 PM, and the air temperature was 66°F with 48 percent RH, and winds calm. The noise monitor was picked up at 6:18 PM on Friday, and the air temperature was 67°F with 29 percent RH, and winds were approximately 2 mph.

The monitoring location is surrounded by a residential community and the CdM campus and athletic facilities are nearby. The noise environment was characterized primarily by operations in the residential community, by aircraft noise due to flyovers, and by operations at the school (children playing, athletic events).

N-10 (short-term). Location 10 was at the south end of a residential community, approximately 2,000 feet south of the project site, and in a parking area serving the residential community, which overlooks a nature park and Jamboree Road. A 15-minute noise measurement began at 3:47 PM on Friday, September 16, 2016; the air temperature was 81°F with 50 percent RH, and winds were between 1 and 2 mph.

The monitoring location is surrounded by residential developments to the north and by a nature area and Jamboree Road to the south. The noise environment of this site was characterized primarily by traffic along Jamboree Road, by operations in the residential community including property maintenance, and by aircraft fly-overs.

Short-Term Monitoring Results

Daytime energy-average noise levels in the areas surrounding the project site during the short-term noise measurements ranged from 39 to 78 dBA L_{eq}. Short-term noise measurement locations are shown in Figure 5.6-1, and the readings are summarized in Table 5.6-10.

The large range of noise levels is due to the low ambient noise levels—which one would expect of a residential community with little or no commercial/industrial development—and the relatively high noise levels of frequent, close-proximity aircraft flyovers.

Long-Term Monitoring Results

Long-term noise measurement locations are also shown in Figure 5.6-1, and the results of the long-term noise monitoring are summarized in Table 5.6-11. The graphical depictions of the hourly noise level records for each long-term monitoring location are in Appendix F of this Draft EIR.

Table 5.6-11 Long-Term Noise Measurements Summary

Monitoring Location	Description	Noise Level (dBA CNEL)	Noisiest Hour		Quietest Hour	
			L_{eq}	Start Time	L_{eq}	Start Time
N-3	On Vista del Oro, south of Eastbluff Elementary	67	60	7 AM	36	3 AM
N-5	On Vista del Oro, west of the project site	56	59	3 PM	36	12 AM
N-6	Directly north of west-most field goal	57	64	1 PM	35	4 AM
N-7	Directly east of east-most field goal	62	65	1 PM	41	3 AM
N-8	Residential community east of project site	57	68	8 AM	37	3 AM
N-9	Residential community southwest of the project site	58	61	10 AM	37	3 AM

Note: Conducted by PlaceWorks staff from Tuesday, August 9, to Wednesday, August 10, 2016.

Ambient Noise Environment

Surrounding Area

The noise environment around the project site is generally typical for a medium-density residential area. In the residential areas that are accessed from roadways branching off of Eastbluff Drive, the typical noise environments are generally controlled by local traffic flows and general suburban din. However, because of the take-off track from John Wayne Airport, this relatively low ambient environment is often raised considerably for a few moments during over-flights.

During the daytime, the time-averaged sound level in the vicinity of the proposed project site is 56 to 62 dBA. For receivers that are directly exposed to roadway noise (i.e., N-7 and N-10), the L_{eq} is 64 to 65 dBA. For the evening period, when major sports field events would take place (i.e., 7 PM to 10 PM), community noise levels at the nearest residential receptors—locations N-6 and N-7—were generally in the range of 54 to 61 dBA L_{eq}. The “residual noise level” (the nominal minimum community noise level, represented by the L_{90} statistical sound level metric) was between 39 and 51 dBA at N-6 and N-7.

On-Road Vehicles

Noise from motor vehicles is generated by engine vibrations, the interaction between tires and the road, and the exhaust system. In order to assess the potential for mobile-source noise impacts, it is necessary to determine the noise currently generated by vehicles traveling through the project area. According to the noise monitoring analysis, noise levels measured 50 feet from the centerline of Eastbluff Road were between 48 and 57 dBA L_{eq}, and noise levels measured 50 feet from Vista del Oro were between 39 and 53 dBA L_{eq}.[6] Noise levels in the community and near other roadways are presented in Table 5.6-11. Peak period traffic volumes were based on the existing daily traffic volumes provided by IBI Group. These traffic increases were used to calculate roadway noise increases at intersections near the project site (analysis under Impact 5.6-1, below).

Aircraft Noise

The project site is near multiple airports and heliports, which produce noise during take-offs, landings, and normal airport operations. These aircraft noise sources are expected to be audible at times at the project site. Airport and heliport facilities in the area include the Newport Beach Police Heliport, approximately 0.4 mile to the south; Costa Mesa Police Heliport, approximately 2.4 miles to the northwest; Atrium Heliport, approximately 2.5 miles to the north; John Wayne Airport, approximately 2.8 miles to the north; and Hoag Hospital Heliport, approximately 3 miles to the west. The most notable of these in terms of community noise is the John Wayne Airport, due to the number, size, and flight patterns of aircraft flying into and out of that facility.

The project site is outside of the 60 dBA CNEL noise contour for John Wayne Airport (JWA 2008), and noise generated by aircrafts approaching and departing would not have adverse noise conditions at the campus.

Stationary Source Noise

All types of land uses have stationary sources of noise. Residential uses generate noise from landscaping, maintenance activities, and air conditioning systems. Commercial uses generate noise from HVAC systems, loading docks, and other sources. Industrial uses may generate noise from HVAC systems, loading docks, and possibly machinery, but there are no industrial land uses near the project area. Noise generated by residential and commercial uses are generally short and intermittent. In Newport Beach, land uses are primarily residential, with retail and commercial uses along major roadways and in other specific areas.

5.6.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would result in:

N-1 Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

N-2 Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

[6] These measured noise levels reflect roadway noise and other noise sources in the community—property maintenance, normal operations at CdM MS/HS, aircraft noise, etc.

N-3 A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

N-4 A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

N-5 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, expose people residing or working in the project area to excessive noise levels.

N-6 For a project within the vicinity of a private airstrip, expose people residing or working the project area to excessive noise levels.

The Initial Study, included in the appendix, substantiates that impacts associated with the following thresholds would be less than significant:

- Threshold N-5
- Threshold N-6

These impacts will not be addressed in the following analysis.

5.6.3 Environmental Impacts

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.6-1 Project implementation would result in long-term, operation-related, roadway noise impacts that would not exceed local standards. [Thresholds N-1 and N-3]

Impact Analysis: To determine if a project would cause a substantial noise increase from project-related traffic, consideration must be given to the magnitude of the increase and the affected receptors. The proposed project would generate additional vehicle trips along the traveled roadway segments around the project site. The greatest traffic increase would likely occur on Friday evenings in the fall (football) season between 4 and 6 PM (i.e., during the weekday evening peak hour) when spectators are traveling to the sports field prior to the beginning of an event. Approximately the same level of traffic would be generated at the end of an event when spectators are exiting, but this would be well after the evening peak traffic period. This level of project-related traffic would also be expected for other major events, such as graduation ceremonies. The sports field may generate traffic at other times of the day (or evening) for practices, but it would be minor compared to a worst-case football game and would be spread out over longer time periods. Other events, such as nonvarsity football games, soccer matches, and practices, would have much lower attendance (no more than 500 expected). Other project-related facilities, such as the baseball, softball, and practice field(s) and tennis courts, would not change their usage, timing, or associated traffic generation.

5. Environmental Analysis
NOISE

A traffic study was conducted by IBI Group in March 2016 that analyzed increases in traffic flow at intersections around the proposed project site during the peak period. The proposed project is not expected to generate a significant number of vehicle trips during the AM peak hour because sports field events would take place during weekday afternoons or evenings. Therefore, the time period selected for analysis in this study is the weekday PM peak period (4:00 PM to 6:00 PM), only as worst-case scenario. A total of 18 different intersections were reported on in the traffic study, and 11 of those intersections are expected to have a greater than 1 percent increase in traffic flow in at least one direction during the peak period. A traffic flow increase of less than 1 percent equates to a less than 0.5 dB noise increase. Therefore, only the 11 intersections that are expected to have a greater than 1 percent increase in traffic flow in at least one direction during the peak period are discussed in the roadway noise analysis; these intersections are shown in Table 5.6-12.

Table 5.6-12 Noise Level Increases due to Increased Traffic at Intersections

#	Intersection	Direction	Existing Peak Period Count	Project Peak Period Count	Percent Change	Noise Level Increase (dB)
1	Jamboree Road/ Eastbluff Drive/ Ford Road	N	2,600	117	5%	0.2
		S	2,100	36	2%	0.1
		E	600	63	11%	0.4
		W	400	58	15%	0.6
2	Jamboree Road/ University Drive/ Eastbluff Road	N	2,400	11	0%	0
		S	2,300	23	1%	0
		E	300	4	1%	0.1
		W	400	24	6%	0.3
3	MacArthur Blvd./ Ford Road/ Bonita Cyn Drive	N	2,700	0	0%	0
		S	3,100	0	0%	0
		E	300	14	5%	0.2
		W	1,200	46	4%	0.2
4	Jamboree Road/ Bristol Street (South)	N	2,400	8	0%	0
		S	1,000	11	1%	0
		E	3,100	12	0%	0
		W	0	0	0%	0
5	Jamboree Road/ Bison Avenue	N	2,200	11	1%	0
		S	2,100	36	2%	0.1
		E	50	0	0%	0
		W	300	0	0%	0
6	Jamboree Road/ San Joaquin Hills Road	N	1,800	35	2%	0.1
		S	2,500	35	1%	0.1
		E	100	0	0%	0
		W	300	82	27%	1
7	Jamboree Road/ Santa Barbara Drive	N	1,400	35	3%	0.1
		S	2,100	11	1%	0
		E	50	0	0%	0
		W	800	0	0%	0

Table 5.6-12 Noise Level Increases due to Increased Traffic at Intersections

#	Intersection	Direction	Existing Peak Period Count	Project Peak Period Count	Percent Change	Noise Level Increase (dB)
8	Jamboree Road/ Pacific Coast Highway	N	300	11	4%	0.2
		S	2,100	11	1%	0
		E	2,200	12	1%	0
		W	2,200	12	1%	0
9	Santa Cruz Drive/ San Joaquin Hills Road	N	500	0	0%	0
		S	50	7	14%	0.6
		E	700	24	3%	0.1
		W	600	75	13%	0.5
10	Santa Rosa Drive/ San Joaquin Hills Road	N	500	0	0%	0
		S	100	5	5%	0.2
		E	800	22	3%	0.1
		W	600	70	12%	0.5
11	MacArthur Blvd./ San Joaquin Hills Road	N	1,700	23	1%	0.1
		S	2,400	0	0%	0
		E	1,200	20	2%	0.1
		W	700	47	7%	0.3

Data from IBI Traffic Study, January 2016.

A doubling of the existing roadway volumes along the surrounding roadways would be required to generate an audible increase of 3 dB or more (FHWA 2006; FTA 2006). Even with a major event or maximum-attended football game, the project-generated vehicle trips would not come close to doubling the peak period roadway volumes for the intersections in proximity to the project site. The worst-case roadway noise increase would result from traffic increases in the west-bound direction of the Jamboree Road and San Joaquin Hills Road intersection. Even so, this traffic increase would only result in a noise level increase of 1 dB, which falls under the threshold of audibility. Thus, it is not anticipated that implementation of the proposed project would result in audible increases in traffic-related noise along the surrounding roadways.

It should be noted that while users along the study area roadway segments would not experience daily (24-hour averaged) noise increases, receptors along roadways in the immediate vicinity of the project site may be exposed to short-term increased traffic noise when cars arrive and depart prior to and after a major event or game at the sports field. Existing residences along some study area roadways would experience short-term increases in noise due to traffic pass-bys on these streets and ingress/egress movements at the school parking lots,[7] but these occurrences would be limited to a relatively small number of major events/games per year that had attendance near or full capacity, and there would not be a notable difference in these ingress/egress and parking lot noises over existing conditions (with the exception of the timing related to occasional, future evening occurrences that do not currently take place). Other minor events, with anticipated attendance below 500 to 700 persons, would not generate substantial traffic, and therefore would not cause perceptible noise

[7] Parking lots typically generate noise from car horns, car engines, brakes and tires, automatic lock beeps, car alarms, car radios, and people talking.

increases at nearby homes. Because the noise exposure due to event traffic would be limited to a few minutes and a relatively small number of events/games per year, potential noise impacts from project vehicle activity would be considered less than significant.

Impact 5.6-2: Sports field noise would result in substantial temporary noise increases at nearby homes that would exceed the City's exterior and interior noise limits. [Thresholds N-1 and N-4]

Impact Analysis:

Project Sports Field Characteristics

The proposed sports field would be on the northeastern boundary of the existing CdM campus in an east-west configuration. The proposed sports field would include a synthetic turf field, a rubberized track, and new 1,000-seat bleachers. The home bleachers would be on the south side of the sports field, and the visitor bleachers would be on the north side, backing up to Vista Del Oro and the Bluffs residential community beyond. The proposed home bleachers would have a capacity of 700 seats, and the visitor bleachers would have a capacity of approximately 300 spectators. It was assumed that both sets of bleachers would include vertical panels to enclose the foot wells, which would provide some sound shielding effects.

Public address (PA) speakers would be mounted on the light poles on the north and south sides of the playing field and placed slightly above bleacher level. It was assumed that the loudspeakers would be directional for precise focusing of sound energy into the bleachers. For modeling purposes, a "partially localized" PA system was assumed. For a conservative worst-case analysis, it was assumed that all loudspeakers would be used when the PA system is on and that the full capacity (1,000 seats) would be occupied during an event. This is conservative since the historical trend has been noted as closer to 500 attendees (see Table 3-2 in Chapter 3).

The high school football season generally extends from late August through the early December, depending on team playoff status. Games are typically played Friday evenings; with starting times between 3 PM and 7 PM, depending on the level of the team. Other events that would use the sports field would be held throughout the school year during the day and evening hours. For example, during the spring, lacrosse games are expected to draw crowds of approximately 500 attendees. Other occasional sporting or special events (e.g., marching band practice, soccer matches, recreation league activities, Foundation Events, clinics) are expected to generally attract from 100 to 500 spectators, but can occasionally approach bleacher capacity (see Table 3-2 in Chapter 3).

General Sports Field Noise

To characterize noise sources and to obtain maximum, future noise levels from the bleachers, a noise monitoring conducted at an existing high school facility during a full-capacity football game was used. (Details on noise monitoring of the measured sports field event can be found in Appendix F.) Noise levels ranged from 62 to 70 dBA L_{eq} at approximately 300 to 350 feet from the center of the field. Because the measured noise levels were for a 4,000 total attendee football game, these noise levels were adjusted downward to account for the 1,000-seat capacity at the proposed Sports Field.

Event noise is highly variable, depending on the type and level of activity in the bleachers and on the field. These variables include:

- PA systems create higher sound levels than typical crowd reactions. PA noise (commentary, announcements, etc.) occurs far more often than crowd cheers.
- Cheering is highly variable depending on the moment-to-moment activity, the number of home or visitor team attendees, and, in particular, the occurrence of "cheer worthy" events (e.g., touchdowns).
- Cheerleaders on portable PA systems and special half-time shows (e.g., fireworks or other special effects) can generate above-average noise levels.
- Foot-stomping on aluminum bleachers can generate substantial noise.
- Other noise sources during a special event include referee whistles and, occasionally, horns and bells.[8]

Project Sports Field Noise Analysis

Sports Field Event Noise, Traffic

Roadway noise impacts resulting from sports field operations are discussed under Impact 5.6-3.

Sports Field Event Noise, Exterior

The future bleacher noise was modeled using SoundPLAN sound propagation analysis software. SoundPLAN uses industry-accepted propagation algorithms based on International Organization for Standardization (ISO) and ÖAL-28 standards for outdoor sound propagation. The modeling calculations account for classical sound wave divergence (spherical spreading loss with adjustments for source directivity from point sources) plus attenuation factors due to air absorption, ground effects, and barrier/shielding. Additionally, SoundPLAN provides for other correction factors, including level increases due to reflections, correction of source impulsiveness, source tonality, meteorological correction, propagation in limited special angle(s), correction due to source operation time, and correction for rest periods.

Noise modeling was conducted for several locations around the project site, as shown on Figure 5.6-2, *Noise Modeling Locations*.

The sports field is in an area that is mostly flat, with a steep drop-off in elevation beyond the residential community to the west (to the Upper Newport Bay) and a gradual, but pronounced increase in elevation beyond Eastbluff Drive to the east. Elevation changes throughout the project area were included in the modeling process, as these notable topographical characteristics will factor into the noise propagation modeling. The modeling accounted for the relatively tightly spaced house rows surrounding the CdM campus. These house rows, consisting of primarily two-story, single-family residences, would generally provide considerable sound

[8] Extraneous, attendee-activated sound sources, such as horns and bells, are not permitted at CIF-sanctioned football games. Nonetheless, in reality, such sources often are involved and they are included in the PlaceWorks measured data library.

5. Environmental Analysis
NOISE

attenuation (due to barrier effects) for receptors beyond the first set of residential structures. However, in certain situations, sound would be able to propagate through "canyons" between residential structures (such as drainage areas between groups of housing).[9]

Additionally, the modeling accounted for planned noise-reduction features built into the bleacher structures, such as vertical paneling to enclose the foot wells. This feature would provide notable sound barrier shielding effects. Even with these sound-blocking features, though, sound would also propagate over the top and around the sides of the bleachers as well as forward from the attendees toward the opposite sides of the field and beyond.

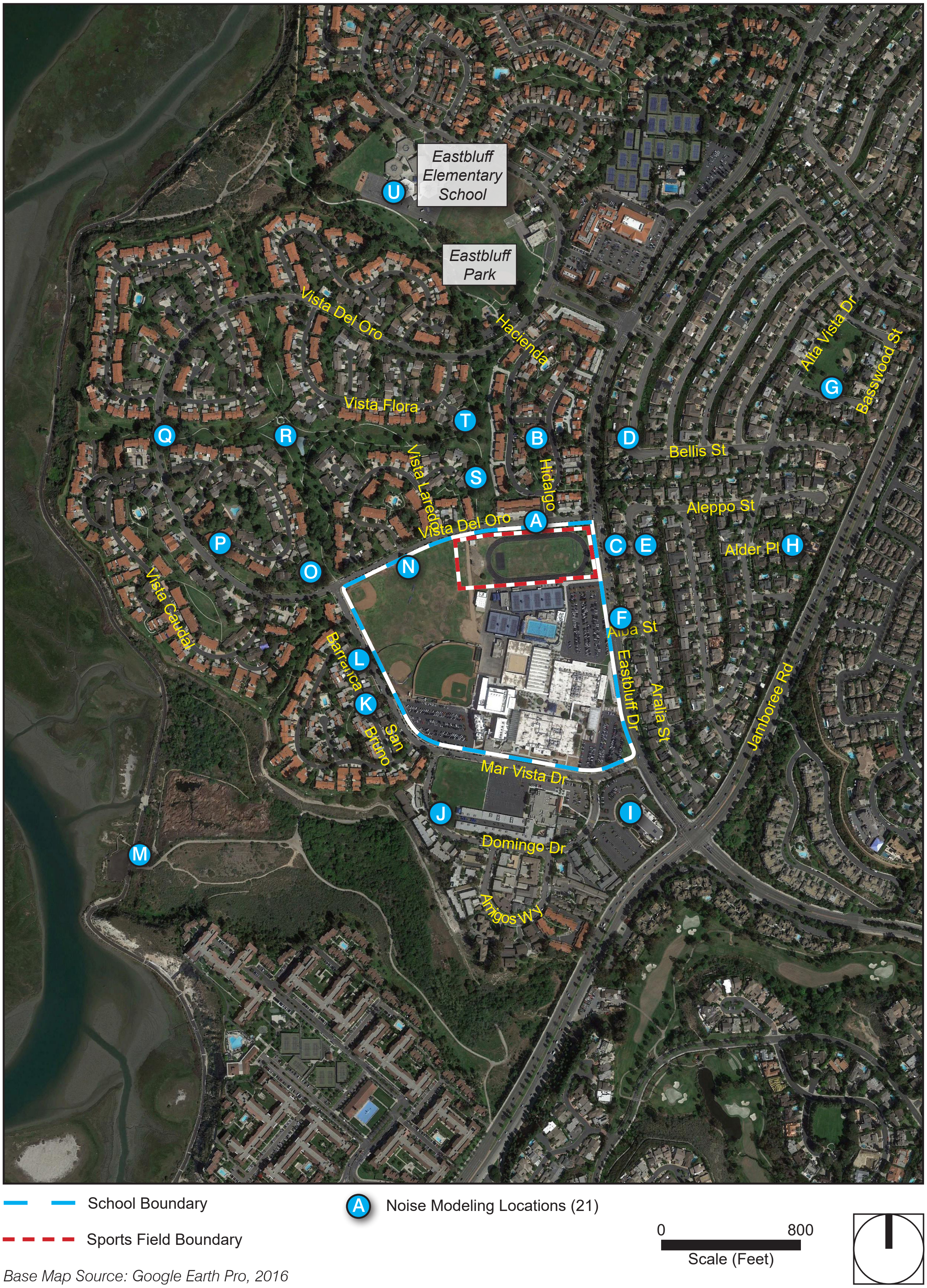
The event-noise analysis assumed the full capacity of the sports field, which is a worst-case scenario and would occur relatively rarely. For crowds of approximately 700 people, the overall sound levels from sports field events are projected to be 1 to 2 dB less than the analyzed 1,000-attendee worst case. Likewise, for crowds of 200 to 400 people, the overall sound levels from sports field events are projected to be 4 to 6 dB less than the analyzed 1,000-attendee worst case.

The general sound level standards of the Newport Beach Municipal Code, Section 10.26.025, are used for absolute noise limits. For single-, two-, or multiple-family residential land uses, the allowable exterior noise level (L_{25}) is 55 dBA from 7 AM to 10 PM, and 50 dBA from 10 PM to the following 7 AM. Section 10.26.025 also includes a limit for the maximum instantaneous noise level, which is the noise standard mentioned above plus 20 dB. Section 10.26.035 exempts "Occasional outdoor gatherings, sporting and entertainment events" provided these events have a permit or license issued by the appropriate jurisdiction.

The exemption notwithstanding, for the purposes of this environmental impact assessment, the modeling results are compared to City municipal code standards for exterior and interior noise. That is, the noise limits from Sections 10.26.025 and 10.26.030 (55 dBA L_{25} until 10:00 PM for exterior areas and 45 dBA L_{25} until 10:00 PM for interior areas, respectively) are used for significance thresholds.

[9] An example of this situation is the parkland area between monitoring locations N-6 and N-3.

Figure 5.6-2 - Noise Modeling Locations



Base Map Source: Google Earth Pro, 2016

This page intentionally left blank.

The numerical results of the predictive modeling process are shown in Table 5.6-13. This table provides the predicted noise levels (estimated minima and maxima levels and L_{eq}) produced by a full-capacity sports field event. The sound level includes event-long averaged combination of crowd noise (talking and cheering), athletic activities, band music, PA announcements, and referee whistles.

Table 5.6-13 Full-Capacity Event Predicted Community Noise Levels

Modeling Receiver Location	Predicted Sound Level Contributions, dBA		Measured Ambient Sound Levels, dBA		Future Ambient + CdM Sports Field Event, dBA[1]		Calculated Change due to CdM Sports Field Event, dB	
	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}
A	***71.4***	85.9	***57.1***	81.3	***71.6***	87.2	**14.5**	**5.9**
B	53.6	68.1	***56.2***	83.0	***58.1***	83.1	1.9	0.1
C	***60.1***	74.6	***65.1***	75.5	***66.3***	78.1	1.2	2.6
D	45.3	59.8	***65.1***	75.5	***65.1***	75.6	0.0	0.1
E	49.0	63.5	***65.1***	75.5	***65.2***	75.8	0.1	0.3
F	53.8	68.3	***65.1***	75.5	***65.4***	76.3	0.3	0.8
G	37.2	51.7	52.5	66.2	52.6	66.4	0.1	0.2
H	48.5	63.0	***58.4***	77.0	***58.8***	77.2	0.4	0.2
I	47.2	61.7	***64.3***	81.5	***64.4***	81.5	0.1	0.0
J	38.4	52.9	***55.7***	79.4	***55.8***	79.4	0.1	0.0
K	47.4	61.9	***55.7***	79.4	***56.3***	79.5	0.6	0.1
L	48.5	63.0	***55.7***	79.4	***56.5***	79.5	0.8	0.1
M	40.9	55.4	***64.3***	81.5	***64.3***	81.5	0.0	0.0
N	***58.6***	73.1	***57.1***	81.3	***60.9***	81.9	**3.8**	0.6
O	48.6	63.1	54.3	71.4	***55.3***	72.0	1.0	0.6
P	38.9	53.4	54.3	71.4	54.4	71.5	0.1	0.1
Q	43.9	58.4	***60.9***	75.6	***61.0***	75.7	0.1	0.1
R	43.5	58.0	***60.9***	75.6	***61.0***	75.7	0.1	0.1
S	***61.1***	75.6	***57.1***	81.3	***62.6***	82.3	**5.5**	1.0
T	50.6	65.1	***56.2***	83.0	***57.3***	83.1	1.1	0.1
U	42.2	56.7	***60.4***	78.3	***60.5***	78.3	0.1	0.0

Source: SoundPLAN 7.1 and L_{eq} input data from noise monitoring at a high school football game.
Notes: Municipal Code Exterior Noise Limits: 55 dBA $L_{eq\text{-}15min}$ at residential receptors (until 10 PM).
Numbers in ***bold italic*** indicate sound levels greater than the Newport Beach Municipal Code limits for the L_{eq} noise level metric (also refer to the main text for additional context).
Numbers in **bold** and shaded indicate sound levels greater than +3 over the existing ambient, which are considered to be readily discernible changes.
[1] This is the predicted sound level contribution from the sports field added to the measured ambient sound levels in logarithmic function.

In viewing these results, it is important to consider the context of the community noise environment in the vicinity of the project site. The noise measurements show that existing ambient noise levels exceed the City's daytime noise threshold (until 10PM) of 55 dBA L_{eq} for nine out of the ten measurement locations. This existing exceedance applies to 18 of the 21 modeling locations.

5. Environmental Analysis
NOISE

Table 5.6-13 shows that only three modeling locations would experience an audible noise increase of 3 dB or more in the pertinent L_{eq} noise metric. This means that for the vast majority of areas around the project site, the community noise environment is currently—and would remain—principally dominated by traffic-related noise. For example, the existing ambient at Location "D" is approximately 65 dBA L_{eq}, 10 dB over the standard (without the sports field). The sports field's predicted contribution is 45 dBA L_{eq} (10 dB below the standard), but the combined future conditions would still be 10 dB over the standard (at 65 dBA L_{eq}), with no incremental addition due to sports field sources. Only one receiver, Location "O", is expected to be incremented above the City's noise threshold of 55 dBA L_{eq} where it wouldn't be otherwise (due to the project contribution of 1 dB).

In general, the residential buildings within approximately 350 feet of the visitor bleachers are expected to experience the greatest noise increases due to project implementation. At these close-proximity locations, the existing ambient plus the project contributions would result in levels of approximately 57 to 72 dBA L_{eq}, depending on distance, orientation to the source, and shielding from existing buildings. Increases in the L_{eq} noise metric at the closest receptors (just north of Vista Del Oro) could be as high as 15 dB (above the existing evening ambient level).

The noise level modeling results for the sports field contribution only (i.e., the second columns under "Predicted Sound Level Contributions" in Table 5.6-13) are shown graphically in Figure 5.6-3, *Predictive Modeling Noise Level Contour Map*, which depicts lines of constant L_{eq} sound level (in 5 dB divisions) for a full-capacity event.

Receiver Locations Based on Orientation to Direct Sound Path

Direct Line of Sight to Sports Field (modeling locations A, C, F, L, O, N). These locations would experience the highest noise levels during sports field events, because the sound path between the source and receiver is generally unimpeded. All noise affecting these receivers is expected to diminish by at least 6 dB per doubling of distance due to distance attenuation alone.

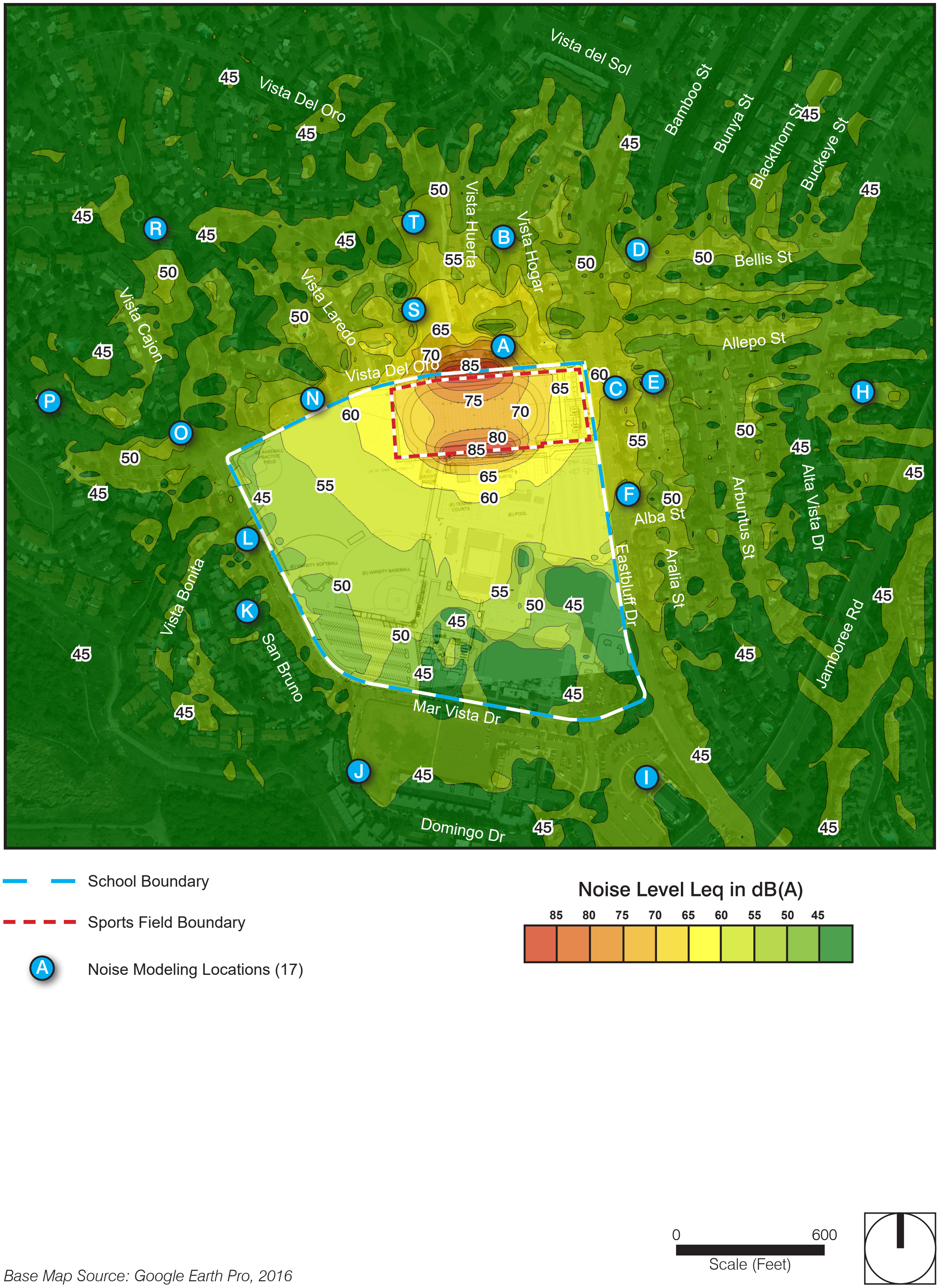
Partial Line of Sight, or slight obstructions to sound path (B, E, J, K, P, S, T). Sports field noise would be audible from these locations. The expected sound level at these receiver locations would vary depending on distance from the source and the degree of obstructions. These locations are shielded by one or two rows of houses and/or near open spaces such as roads or drainage areas where sound would easily travel through.

Completely Obstructed Line of Sight to the Sports Field (D, G, H, I, Q, R, U). At times, sports field noise may be audible at these locations, depending on the receiver's distance to the source and the degree of obstruction. Due to the long distance and the many rows of buildings between the source and the receiver , these locations are expected to intermittently hear sports field noise only during high attendance events and/or pronounced spikes in sound emissions (e.g., cheering over a big play).

For the elementary school to the northwest and the Catholic school to the southeast—locations U and I, respectively—project events would mostly occur outside of normal school hours. Therefore, sensitive receptors at surrounding schools would not experience significant sports field noise impacts.

Figure 5.6-3 - Predictive Modeling Noise Level Contour Map

5. Environmental Analysis



Base Map Source: Google Earth Pro, 2016

This page intentionally left blank.

Receiver Locations Based on Direction

North (modeling locations A, B, N, S, T). A full-capacity event at the sports field is predicted to generate sound levels between 57 and 72 dBA L_{eq}, depending on the line-of-sight access to the CdM campus. The residential area to the north of the project site would experience the highest noise levels because the homes are closest to the sports field. Homes beyond the first row of buildings would experience substantially lower noise levels due to barrier effects.

East (C through H). There is a pronounced elevation increase east of Eastbluff Drive. This hillside would provide substantial attenuation, absorbing and/or reflecting sound away from the residential community to the east. The homes with a direct line of sight to the sports field would still experience high levels of sports field noise, and homes beyond the first row of buildings would experience increasingly less noise as distance from the sports field increases.

South/Southwest (I through K). Most receptor buildings to the south and southwest would experience substantially less noise than buildings to the north. Not only would sound traveling in this direction be attenuated by large distances, but the tall and wide campus buildings would act as barriers.

West (L, O, P). The noise levels at locations to the west would depend on the distance between source and receiver and the degree of obstruction. Receivers with direct line of sight—such as those along Vista Del Oro or along a "sound canyon" pathway—would experience high noise levels during stadium events. Homes without a direct line of sight would experience less sports field noise due to the shielding from intervening structures.

Summary for the L_{eq} Metric

A full-capacity event at the CdM sports field is predicted to be above the municipal code limit for afternoon/evening events at 19 locations; however, 18 of these locations already exceed that exterior limit (according to measurement data) due to other community noise sources. There are approximately a dozen 3- to 4-unit multifamily buildings north of Vista Del Oro (locations N, S, A) that have relatively unimpeded line of sight to the project and that are predicted to have noise level increases above 3 dB during a full-capacity event at the sports field. The highest expected off-site level of 72 dBA L_{eq} is at the nearest facades of the residential buildings directly to the north (Location A). Since several residential units would have noise levels above the municipal code limits and would experience increases greater than 3 dB during full-capacity events, these nearby residential receptors would experience significant noise impacts.

Future community sound levels during sports field events would be approximately 55 to 63 dBA L_{eq} for homes further than 350 feet from the project site and that have some amount of intervening barrier benefit (e.g., locations B and T). However, the existing community noise at these locations is approximately equal to the noise level emissions from a sports field event. Therefore, these receptors would not experience a substantial noise increase (i.e., greater than 3 dB). Sports field event sounds may be readily audible at many of these receptor areas, but because of the relatively small increase, noise impacts that would be less than significant.

5. Environmental Analysis
NOISE

If events run later than 10:00 PM, the noise limit is reduced by 5 dB, and more residences would experience sound levels above the threshold of significance. However, this is not expected except in unusual circumstances (such as an extended injury time-out or a game running into an overtime period).

Summary for the L_{max} Metric

In addition to the L_{eq} metric, the L_{max} noise level is important for variable sound sources, such as football games. Based on measurement data from several reference full-capacity football events, the maximum noise levels are generally 12 to 13 dB higher than the L_{eq}.

The maximum noise threshold in the Newport Beach municipal code is 20 dB higher than the L_{eq} threshold, which is 55 dBA during the daytime. Thus, the L_{max} threshold is 75 dBA prior to 10 PM. Receivers closest to the visitor side bleachers (i.e., Location A) may experience maximum noise levels exceeding 75 dBA for short periods. For receivers more than 350 feet from the project, maximum noise thresholds would not be exceeded.

Sports Field Event Noise, Interior

The highest future noise levels would be near modeling locations A and C—with predicted exterior noise levels of 71 to 60 dBA L_{eq}. Factoring in the typical minimum noise reduction of 24 to 25 dBA with windows closed, interior noise levels at these residences are predicted to be approximately 35 to 47 dBA L_{eq} (EPA 1971a, 1974, 1978b). With the typical minimum noise reduction of 12 to 14 dBA with windows open, interior noise levels at the closest residences would be approximately 46 to 59 dBA L_{eq}.

The City's standard for interior noise is 45 dBA L_{eq} up to 10 PM and 40 L_{eq} from 10 PM to 7 AM. The predicted interior sound environment in the closest houses would exceed the 45 L_{eq} interior threshold, regardless of the position of windows. This would result in a significant impact.

More-distant homes would have lower exterior sound levels during sports field events because of distance and/or barrier attenuation, and their associated interior sound levels would necessarily be less than at the closest receptors—35 to 47 dBA L_{eq} (windows closed) or 46 to 59 dBA L_{eq} (windows open). These more distant receptors are not expected to exceed the interior noise standard.

Impact 5.6-3: The proposed project would not create short-term or long-term groundborne vibration and groundborne noise. [Threshold N-2]

Impact Analysis: Groundborne vibration and groundborne noise may be of concern during ongoing operations or during the construction phase, as discussed separately below.

Vibration during Operations

Operation of the project, including full-capacity events at the sports field, would not generate substantial levels of vibration because there are no notable sources of vibrational energy associated with the project. Thus, operations of the proposed project would not result in significant groundborne vibration impacts.

Vibration during Construction

Construction activities generate varying degrees of ground vibration, depending on the construction procedures, construction equipment used, and proximity to vibration-sensitive uses. Construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance. Table 5.6-14, *Typical Vibration Levels Produced by Common Construction Equipment Items,* shows the peak particle velocities (PPV) of some common construction equipment and haul trucks (loaded trucks).

Table 5.6-14 Typical Vibration Levels Produced by Common Construction Equipment Items

Equipment	Peak Particle Velocity in inches per second		
	at 25 ft.	at 50 ft.	at 100 ft.
Clam Shovel Drop (slurry wall)	**0.202**	0.071	0.025
Vibratory Roller	**0.210**	0.074	0.026
Hoe Ram	**0.089**	0.031	0.011
Large Bulldozer	**0.089**	0.031	0.011
Caisson Drilling	**0.089**	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Jackhammer	0.035	0.012	0.004
Small Bulldozer	0.003	0.001	0.0004

Source: FTA 2006.
Note: **Bold** values are considered readily perceptible, per Table 5.6-3 (i.e., greater than 0.08 PPV).

The project site is generally level, so little heavy earthwork would be required. Demolition of the existing tennis courts, portions of the existing parking lot area, and reconfiguration of the existing athletic fields would be required. Typically, these activities are performed with jackhammers, dozers, and backhoes or excavators with hydraulic attachments such as grapples, hammers, and shears. Following demolition, construction equipment would be limited to typical items such as forklifts, delivery/dump trucks, loaders/backhoes, a rubber-tired dozer, pavers, a grader, a concrete saw, and a crane. These types of equipment do not generate substantial levels of vibration at 25 feet. Minor grading and excavation would be necessary to install utilities and structural components for the sports field seating and lighting.

Vibration-Induced Structural/Architectural Damage

The threshold at which there is a risk of architectural damage to normal houses with plastered walls and ceilings is 0.2 in/sec (Caltrans 2004; FTA 2006). Building damage is not a factor for normal construction, with the occasional exception of blasting and pile driving (FTA 2006). No blasting, pile driving, or hard rock ripping/crushing activities are anticipated during project construction. Small construction equipment generates vibration levels less than 0.1 PPV in/sec at 25 feet away.

The nearest off-site residential structures (or other sensitive receptors) to construction activities are the single-family residences to the north, beyond Vista Del Oro (at least 125 feet from the northern boundary of the sports field). The nearest on-campus buildings are the P.E. and weight-room buildings approximately 40 feet south of the proposed Sports Field. Buildings with regular classroom activities are approximately 380 feet south of the proposed project site.[10]

Because vibration dissipates quickly with distance, and because construction would mostly use small earthmoving equipment that does not generate considerable vibration, the maximum construction-related vibration level at off-campus receptors would be approximately 0.03 PPV in/sec, and the maximum construction-related vibration level at on-campus receptors would be approximately 0.1 PPV in/sec, both of which are well below the 0.2 PPV in/sec criteria for vibration-induced architectural damage. Therefore, architectural-damage vibration impacts from construction would be less than significant for both off-campus and on-campus receptors.

Vibration Annoyance

The 2006 General Plan EIR used a threshold of 72 VdB for vibration annoyance levels at residential uses, which will also be used in this EIR. The FTA's criteria (see Table 5.6-4) are frequently used as significance thresholds for vibration-related annoyance that is due to resonances of the structural components of a building.

Vibration is typically noticed nearby when objects in a building generate noise, such as rattling windows or picture frames. It is typically not perceptible outdoors, and therefore impacts are based on the distance to the nearest building (FTA 2006). The effects of vibration vary depending on soil type, ground strata, and receptor building construction. They range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight damage at the highest levels.

Off-Campus Impacts

The nearest off-site residential structure would be at least 275 feet away from the center of the proposed project site (spatially averaged analysis). At this distance, vibratory rollers or similar equipment items would be expected to generate 63 VdB (or approximately 0.006 PPV in/sec), and a large bulldozer would be expected to generate 56 VdB (or approximately 0.002 PPV in/sec). Even with large, vibration-intensive equipment, construction-generated vibration at the nearest residence would be less than the annoyance threshold. Because the proposed project would use smaller (and less intensive) equipment and construction equipment moves around the site, and because vibration dissipates quickly with distance, the maximum construction-related vibration levels would be much less than 63 VdB (or approximately 0.006 PPV in/sec) for the majority of the time. This is well below the criteria for vibration-induced annoyance at the nearby homes. The church and school buildings and other homes (including those on Eastbluff Drive and Mar Vista Drive), all of which are more distant from the construction zones than the homes on Vista Del Oro, would experience undetectable or unmeasurable vibration levels. Therefore, construction vibration impacts related to annoyance would be less than significant at all nearby vibration-sensitive land uses.

[10] Vibration-induced architectural damage analysis typically uses worst-case distances (instead of spatially averaged distances). In this case, 40 feet and 380 feet were used as worst-case distances for on-campus buildings.

On-Campus Impacts

The nearest on-site structure (athletic/P.E. building) is approximately 200 feet from the center of the proposed project site. At this distance, vibratory rollers or similar equipment items would generate 67 VdB (or approximately 0.009 PPV in/sec), which is well below the criteria for vibration-induced annoyance at on-campus buildings. In fact, for the majority of the time, the maximum construction-related vibration levels would be much less than this because smaller (and less intensive) equipment would be used on the proposed project, construction equipment moves around the site, and vibration dissipates quickly with distance. Other campus buildings (including those with regular classroom activities) would experience unmeasurable vibration levels. Therefore, construction vibration impacts related to annoyance would be less than significant at all on-campus vibration-sensitive land uses.

In summary, both construction and operations activities would not create substantial groundborne vibration or groundborne noise at off-campus or on-campus receptors. This impact would be less than significant.

Impact 5.6-4: Construction activities would not result in temporary noise increases in the vicinity of the proposed project. [Threshold N-4]

Impact Analysis: Construction of the proposed project would generate temporary noise. In typical construction projects, demolition and grading activities usually generate the highest noise levels since they involve the largest equipment. The project site is generally level, so little heavy earthwork would be required. Further, the project does not require significant cut or fill, so grading would be balanced on site and no import or export of soils is anticipated. New and reconstructed areas include the sports field footprint, home- and visitor-side bleachers, ticket booth/concession building, and poles for the PA and lighting fixtures.

In general, construction equipment for the sports field and related athletic facilities would be limited to relatively small- to medium-sized construction equipment such as loaders/backhoes, paving equipment, scrapers, excavators, rubber-tired dozers, graders, concrete saws, forklifts, welders, rollers, pavers, concrete trucks, and air compressors. A crane would be needed to install the new poles for lighting and the PA speakers. Project construction would require demolition of existing field structures such as goalposts, score board, and storage structures; site preparation and utility trenching; installation of bleachers and lighting; and construction of the ticketing/restroom/concession building. The total duration for project construction would be approximately 9 months, and it is intended to be operational by the summer of 2018.

The City of Newport Beach recognizes that the control of construction noise is difficult and provides an exemption for this type of noise when the work is performed between 7:00 AM and 6:30 PM, Monday through Friday; 8:00 AM and 6:00 PM on Saturday; and not at all on Sundays or federal holidays. 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. Existing uses surrounding the project site would be exposed to construction noise.

Construction Vehicles

The transport of workers and equipment to the construction site would incrementally increase noise levels along site access roadways. Typically for this type of project, the demolition haul phase would generate the highest traffic increases due to construction vehicles. However, any vehicle trips due to construction activities (for the aggregate of workers, vendors, haul-offs, etc.) would be marginal compared to vehicle flows along Eastbluff Drive, which has average daily traffic of approximately 8,000.[11] Construction vehicles would produce less than a 0.5 dB noise increase, which would be inaudible at sensitive receptors,[12] and therefore would have a less than significant impact.

Individual construction vehicle pass-bys may create momentary noise levels of up to approximately 85 dBA (L_{max}) at 50 feet from the vehicle, but these occurrences would generally be infrequent and short lived. Therefore, noise impacts from construction vehicles would be less than significant.

Construction Equipment

Noise generated during construction 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 piece of equipment, and the dominant noise source is 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. In the construction of residential and mixed-use projects, grading and construction typically generate the highest noise levels because they require the largest equipment. Heavy equipment, such as a dozer or a loader, can have maximum, short-duration noise levels in excess of 80 to 85 dBA at 50 feet. 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 sensitive receptor. Since noise from construction equipment is intermittent and diminishes at a rate of 6 dB per doubling distance (conservatively ignoring other attenuation effects from air absorption, ground effects, and/or shielding/scattering effects[13]), the average noise levels at noise-sensitive receptors could varying considerably, because mobile construction equipment would move around the site with different loads and power requirements.

Off-Campus Construction Noise Levels

The pertinent properties surrounding the project site consist of residential and educational/religious uses. The sensitive uses in the vicinity of the proposed project site include the Bluffs residential community (approximately 275 feet to the north of the project), the residential community approximately 430 feet to the east, and a Catholic church and school (approximately 1,300 to 1,600 feet to the south of the sports field). In addition to the off-campus sensitive receptors, the nearest on-site classroom building is approximately 520 feet south of the proposed project site, and the nearest on-site non-classroom building is approximately 200 feet south of the proposed project site. The retail area at the Eastbluff Village Center (approximately 1,600 feet to the north of the sports field) is not noise sensitive.

---

[11] Per the project traffic study by IBI Group, January 2016.

[12] Audible increases in general community noise levels generally refer to a change of 3 dB or more; this level has been found to be the threshold of perceptibility in exterior environments.

[13] As sound energy travels outward from the source, spreading loss accounts for a 6 dB decrease in noise level. Soft ground and atmospheric absorption effects can decrease this by an additional 1.5 dB (for a total of 7.5 dB decrease per distance-doubling).

Using information provided by the City of Newport Beach, coupled with methodologies and inputs employed in the air quality assessment, the expected construction equipment mix was estimated and categorized by construction activity. Construction activities are projected to last approximately 9 months. The noisiest portions, however (i.e., demolition, site preparation, and grading phases), are expected to take a total of 4 months and are planned to commence August of 2017.

Project construction would involve demolition of small surrounding structures and asphalt; site preparation and grading of existing land; and construction of an athletic complex stadium, home and visitor side bleachers, ticket booth/concession building, public address system, and nighttime lighting. Noise levels from project-related construction activities were calculated from the simultaneous use of all applicable construction equipment at spatially averaged distances (i.e., from the center of the construction area) to the property line of the closest receptors. Although construction may occur across the entire site, the area around the center of the project site best represents the potential average construction-related noise levels to the various sensitive receptors during the proposed construction activities of this project. The associated, aggregate sound levels—grouped by construction activity—are summarized in Table 5.6-15.

Table 5.6-15 Project-Related Construction Noise Levels, Energy-Average (L_{eq}) Sound Levels, dBA

Construction Activity Phase	Dates	Sound Level at Various Distances from Construction Activities, dBA L_{eq}				
		The Bluffs Residential Community (275 ft.)	Residential Area to East (430 ft.)	Church and School (1,325 ft.)	On-Site Classroom Building (400 ft.)	On-Site Non-classroom Building (200 ft.)
Asphalt Demolition	8/1/17-8/11/17	70	66	56	67	73
Structures Demolition	8/11/17-8/17/17	72	68	58	68	74
Site Preparation	8/21/17-9/15/17	68	64	54	65	71
Rough Grading	9/18/17-10/10/17	68	64	54	65	71
Utility Trenching	10/10/17-11/3/17	62	58	48	59	65
Fine Grading	11/3/17-11/24/17	68	64	54	65	71
Stadium Construction	11/27/17-4/27/18	64	60	50	61	67
Asphalt Paving	1/15/18-2/1/18	69	65	55	65	71
Finishing/Landscaping	2/1/18-2/23/18	60	56	47	57	63
Field Lighting Install	2/15/18-3/3/18	59	55	45	56	62
Architectural Coating	3/15/18-4/1/18	59	55	45	56	62

Notes: Calculations performed with the FHWA's RCNM software and included in the Appendix F.

Construction activities would increase noise levels at and near the proposed area of improvements. Due to the proximity, the highest expected construction-related noise levels—up to approximately 72 dBA L_{eq}—would be at the nearest residential receptors at the Bluffs community. The nearest measurement location, N-6, recorded daytime noise levels in the range of 57 to 64 dBA L_{eq} at this location. Thus, short-term and intermittent noise levels could increase by 8 to 15 dB (in the A-weighted L_{eq} metric) on the north side of Vista Del Oro, depending on equipment location, power level, and activity duration. Nonetheless, since all construction would occur during the City of Newport Beach's allowable hours of construction, the construction duration would be temporary (i.e., 4 months for the loudest phase and 9 months in total), and excursions in noise levels above typical ambient conditions would be sporadic and intermittent, impacts at off-campus receivers would be less than significant and no mitigation measures are necessary.

On-Campus Construction Noise Levels

Since construction activities may take place while school is in session, student learning activities at nearby buildings may be affected by construction noise. Some classroom buildings on campus are approximately 400 feet from the construction zone, while other existing non-classroom buildings are as close as 200 feet from the proposed project site. Due to the proximity of the nearest school buildings, construction noise levels could be in the range of 56 to 68 dBA L_{eq} at the exterior façade of an existing classroom building, and in the range of 62 to 74 dBA L_{eq} at the exterior facade of an existing non-classroom building. With an assumed exterior-to-interior sound reduction factor for typical school buildings of 24 dB (EPA 1978), these exterior levels would result in interior sound environments of 44 dBA L_{eq} in the classrooms and 50 dBA L_{eq} in non-classroom building spaces.[14] For the former, the result would comply with the California requirement of no more than 45 dBA for classroom buildings. For the latter, the estimated interior noise levels at the nearest non-classroom building will be over 45 dBA L_{eq}, but since this building is considered a non-sensitive receiver, there would be no noise intrusion. Thus, no significant on-campus noise impacts would occur and no noise reduction measures are necessary.

5.6.4 Cumulative Impacts

Mobile-Source Noise

The cumulative traffic noise levels would not increase by a noticeable amount (+3 dB) along the roadways analyzed. Therefore, cumulative increases in traffic noise levels would not occur and impacts would be less than cumulatively considerable.

Stationary-Source Noise

Unlike transportation noise sources, whose effects can extend well beyond the limits of the project site, stationary-source noise generated by the project is limited to noise impacts to noise-sensitive receptors near the project site. Noise from the sports field at nighttime would result in significant exterior and interior noise impacts to the residential uses north of the visitor side bleachers individually. The noise environment near

[14] That is, 68 minus 24 would be 44 dBA L_{eq} for the classroom building and 74 minus 24 would be 50 dBA L_{eq} for the non-classroom building.

most residential receptors already exceeds the limit set in the municipal code currently. Therefore, the Proposed Project would result in individually and cumulatively considerable noise impacts.

Construction Noise

Like stationary-source noise, construction noise and vibration impacts are confined to a localized area of impact. Cumulative impacts would only occur if other projects were being constructed in the vicinity of the project at the same time as the project. Noise from construction activities would be temporary and would not be significant. The project impacts would not be individually or cumulatively considerable.

5.6.5 Existing Regulations

- City of Newport Beach General Plan, Chapter 12, Noise Element
- City of Newport Beach Municipal Code, Section 10.26.025, Exterior Noise Standards
- City of Newport Beach Municipal Code, Section 10.26.030, Interior Noise Standards
- City of Newport Beach Municipal Code Section 10.28.040, Construction Activity- Noise Regulations
- FTA Noise and Vibration Impact Guidelines, Section 8, Vibration Impact Criteria
- FTA Noise and Vibration Impact Guidelines, Section 12, Noise and Vibration during Construction

5.6.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions, the following impact would be less than significant: 5.6-1, 5.6-3, and 5.6-4.

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

- **Impact 5.6-2** Sports field events would result in temporary and periodic increases in ambient noise levels.

5.6.7 Mitigation Measures

Impact 5.6-2

N-1 Prior to holding the first spectator event, the Newport-Mesa Unified School District (N-MUSD) shall develop and enforce a good-neighbor policy for sports field events. Signs shall be erected at entry points that state prohibited activities during an event (e.g., use of air horns, unapproved audio amplification systems, bleacher foot-stomping, boisterous activity in parking lots upon exiting the field) and monitored by the N-MUSD staff.

N-2 During subsequent design phases of the bleachers and PA system, the Newport-Mesa Unified School District's sound system contractor shall create a Stadium Sound System Design Plan. The project's sound system design goal should be to optimize conveying information to the event attendees while minimizing off-site spill-over effects. The design shall aim at incorporating as many low-power speakers as practical that are located as close to the event attendees as practical. The design should include specifications that optimize the sound system for speaker placement, speaker dispersion pattern, and speaker acoustic output. The design goal should be a Speech Transmission Index (STI) of 0.65 or greater (or, equivalently, a Common Intelligibility Scale (CIS) of 0.83 or greater). Prior to the first sports field event, the public address system contractor should perform a system check-out to verify appropriate sound levels in the seating areas, as well as minimized spill-over sound levels into the adjacent community areas.

N-3 Prior to holding the first spectator event, the Newport-Mesa Unified School District shall construct a barrier wall system along the rear of the visitor side bleachers. Based on the analysis in this report, the barrier should extend 5.5 feet above the back end of the visitor side bleachers, and extend approximately 11 feet to the east and west of the ends of the bleachers. Given the complex geometry, the wall shall be optimized through detailed acoustical investigations considering the cost-benefit ratio for the sound barrier wall in terms of benefits at the most-affected sensitive receptors.

5.6.8 Level of Significance After Mitigation

Impact 5.6-2

The modeling input sound levels from the reference football events included sound emissions from a "partially localized" PA system. Therefore, the modeling for the proposed project also assumed sound energy from a partially localized PA system. Such a system uses more speakers, each operating at reduced output settings than there would be with a centralized PA system (which would employ fewer, but louder speakers). While a partially localized PA system is better than a centralized system, additional benefits may be realized with a fully localized system with respect to event sound levels propagating into neighboring areas. During subsequent design phases of the project features, additional acoustic investigations per Mitigation Measure N-2 would optimize the project's sound system for both conveying information to the event attendees while minimizing offsite spill-over effects.

The proposed project includes noise-reduction features for the bleachers, such as vertical paneling to enclose the foot wells and solid walls at the rear of each bleacher structure. However, even with these sound-blocking features, sound would propagate over the top and around the sides of the bleachers, as well as forward from the attendees toward the opposite sides of the field and beyond.

Mitigation Measure N-3 would position a sound wall behind the visitor side bleachers to provide noise shielding for the most-affected receptors to the north of the project site (i.e., within 350 feet of the visitor side bleachers), where the noise environment is expected to exceed the local exterior and interior noise standards during a high-capacity sports field events.

An evaluation was conducted to examine the additional vertical barrier features. For this mitigation investigation, a set of close-proximity modeling locations (numbered 1 through 16) was used. These are shown in Figure 5.6-4, *Sound Wall Evaluation Locations*.

Figure 5.6-4 - Sound Wall Evaluation Locations
5. Environmental Analysis

Base Map Source: Google Earth Pro, 2016

This page intentionally left blank.

Implementation of a sound wall with approximately 5.5 feet above the back end of the visitor side bleachers and extending approximately 11 feet wide to the east and west end of the bleachers would result in noise attenuation as shown in Table 5.6-16, *Attenuation due to Sound Wall Mitigation Measure*. The full results of the evaluation of several sound wall dimensions are included in Appendix F to this DEIR. The sound wall would provide constant height along the width of the wall. The sound wall dimensions were chosen for practicality and effectiveness. That is, the benefits for noise attenuation quickly approach a point of diminishing returns beyond these dimensions, and the cost-effectiveness of higher or longer wall dimensions would not be a prudent expenditure in relation to the associated, incremental attenuation.

Table 5.6-16 Attenuation due to Sound Wall Mitigation Measure

Receiver Location	Level Before Mitigation (dBA L_{eq})	Level After Mitigation (dBA L_{eq})	Attenuation (dBA L_{eq})
1	68.2	64.0	4.2
2	69.3	64.8	4.5
3	73.7	63.2	10.5
4	67.2	57.3	9.9
5	58.5	51.4	7.1
6	60.1	56.5	3.6
7	60.8	54.7	6.1
8	58.3	52.3	6.0
9	58.6	53.6	5.0
10	47.9	47.0	0.9
11	50.9	49.8	1.1
12	46.0	45.4	0.6
14	53.3	53.3	0.0
15	45.5	44.2	1.3
16	49.9	47.9	2.0

Source: PlaceWorks, December 2016; predictive modeling via SoundPLAN v7.4

As shown in Table 5.6-16, attenuations in the range of 3 to 10 dB are predicted at the receptors that would be most affected by sports field event noise. However, implementation of such a sound wall would not reduce noise impacts to levels below the local noise thresholds.

Although Mitigation Measures N-1, N-2, and N-3 would reduce noise in neighboring community areas during large-attendance events, the noise levels would not be reduced to below significance thresholds. Such facility events, therefore, would result in short-term noise impacts at existing residential properties that are significant and unavoidable.

5.6.9 References

Airport Land Use Commission for Orange County (ALUC). 2008, April. Airport Environs Land Use Plan for John Wayne Airport.

5. Environmental Analysis
NOISE

Beranek, Leo. 1988. *Noise and Vibration Control*. Revised edition. Washington, D.C.: Institute of Noise Control Engineering.

Bies, David A. and Colin H. Hansen. 2009. *Engineering Noise Control: Theory and Practice*. 4th edition. New York: Spon Press.

Bolt, Beranek & Newman (BBN). 1987. Noise Control for Buildings and Manufacturing Plants.

California Department of Transportation (Caltrans). 2009, November. Technical Noise Supplement ("TeNS"). Prepared by ICF International.

______. 2006. Traffic Noise Analysis Protocol.

______. 2004, June. Transportation- and Construction-Induced Vibration Guidance Manual. Prepared by ICF International.

______, Division of Environmental Analysis. 2002, February. Transportation Related Earthborne Vibration (Caltrans Experiences). Technical Advisory, Vibration. TAV-02-01-R9601. Prepared by Rudy Hendricks.

California Office of Noise Control. 1976, February. Guidelines for the Preparation and Content of Noise Elements of the General Plan, adapted from the US EPA Office of Noise Abatement Control, Washington D.C. Community Noise. Prepared by Wyle Laboratories. December 1971.

Federal Highway Administration (FHWA). 1978, December. Federal Highway Traffic Noise Prediction Model. United States Department of Transportation Report No. FHWA-RD77-108.

______. 2006. Conditions and Performance Report. https://www.fhwa.dot.gov/policy/2006cpr/

______. 2011, July. Noise Compatible Planning, a Federal Approach: The Audible Landscape. Office of Planning, Environment & Realty. US Department of Transportation. http://www.fhwa.dot.gov/environment/noise/noise_compatible_planning/federal_approach/audible_landscape/al04.cfm.

Federal Transit Administration (FTA). 2006, May. Transit Noise and Vibration Impact Assessment. United States Department of Transportation. FTA-VA-90-1003-06.

Governor's Office of Planning and Research. 2003, October. State of California General Plan Guidelines.

Harris, Cyril M. 1998. *Handbook of Acoustical Measurements and Noise Control*. 3rd edition. Woodbury, NY: Acoustical Society of America.

Society of Automotive Engineers, Inc. (SAE). 1971, October. House Noise: Reduction Measurements for Use in Studies of Aircraft Flyover Noise. AIR 1081.

Thalheimer, E., 2000. Construction Noise Control Program and Mitigation Strategy as the Central Artery/Tunnel Project. Washington, DC: Institute of Noise Control Engineering.

US Department of Housing and Urban Development (HUD). 1985, March. *The Noise Guidebook: A Reference Document for Implementing the Department of Housing and Urban Development's Noise Policy*. Washington, DC: The Division.

US Environmental Protection Agency (USEPA). 1971a, October. Society of Automotive Engineers, Inc. (SAE). House Noise – Reduction Measurements for Use in Studies of Aircraft Flyover Noise. AIR 1081.

———. 1971b, December. Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances. Prepared by Bolt, Beranek & Newman (Cambridge, MA) for the U.S. EPA Office of Noise Abatement and Control. Washington, D.C.

———. 1974, March. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. Washington, D.C.: U.S. EPA Office of Noise Abatement and Control.

______. 1978a, November. Protective Noise Levels (Condensed version of 1971 and 1974 documents). EPA 550/9-79-100.

______. 1978b, October. Office of Noise Abatement and Control. Washington, D.C. Quieting in the Home. Reprinted from National Bureau of Standards Handbook 119 (Quieting: A Practical Guide to Noise Control) by Berendt, Raymond D.; Corliss, Edith; and Ojalvo, Morris.

This page intentionally left blank.

5.7 PUBLIC SERVICES

This section of the Draft Environmental Impact Report (DEIR) addresses public services, specifically fire protection and police protection. Park services are addressed in Section 5.8, *Recreation*.

5.7.1 Fire Protection

5.7.1.1 ENVIRONMENTAL SETTING

Regulatory Background

International Fire Code

The International Fire Code includes specialized technical fire and life safety regulations that apply to the construction and maintenance of buildings and land uses. The code addresses fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire safety requirements for new and existing buildings.

California Health and Safety Code

State fire regulations in Sections 13000 et seq. of the California Health and Safety Code address building standards (also in the California Building Code), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training.

City of Newport Beach Municipal Code

The Newport Beach Municipal Code identifies land use categories, development standards, and other general provisions that ensure consistency between the city's general plan and proposed development projects. The following provisions focus on fire services impacts:

- **Chapter 2.20 (Emergency Services).** Addresses preparation and implementation of plans for protection of persons and property in the event of an emergency; the assignment of powers and duties to certain city officials; and the coordination of emergency service functions of the city with all other public agencies and affected private persons, corporations, and organizations. An emergency council is established and its members' powers and duties are described. It is the duty of the emergency council to develop and recommend, for adoption by the city council, emergency and mutual aid plans and agreements as well as ordinances, resolutions, rules, and regulations to implement such plans and agreements.

- **Chapter 3.12 (Property Development Tax).** Funds public improvements and facilities consisting of fire stations and fire-fighting equipment, city libraries, and city parks that cannot be funded by the ordinary city revenues. The tax is imposed upon the construction and occupancy of residential, commercial, and industrial units or buildings in the city.

- **Chapter 9.04 (Fire Code).** Adopts the 2010 California Fire Code and the 2009 International Fire Code, which outline specific fire prevention features to be integrated into new development plans prior to issuance of construction permits.

- **Section 9.04.140 (Very High Fire Hazard Severity Zone).** Identifies areas in the city that are considered in Very High Fire Hazard Severity Zones by the California Department of Forestry and Fire Protection. Areas in the zone are required to adhere to additional fire prevention guidelines to minimize susceptibility to fire hazards.

City of Newport Beach Emergency Management Plan

The emergency management plan provides guidance for Newport Beach's response to extraordinary emergency situations from natural disasters, technological incidents, and national security emergencies. This plan determines the actions to be taken by the city to prevent disasters where possible, reduce the vulnerability of residents to any disasters, protect citizens from the effects of disasters, respond effectively to the actual occurrence of disasters, and provide for recovery in the aftermath of an emergency.

Existing Conditions

The Newport Beach Fire Department (NBFD) provides fire protection services for the entire City of Newport Beach. Automatic aid is given to and received from the cities of Costa Mesa, Huntington Beach, and Laguna Beach and the Orange County Fire Authority.

The department is divided into three divisions: Fire Operations, Life Safety Services, and Marine Operations. As an "all risk" fire department, NBFD is responsible for reducing loss of life and property from fire, medical, and environmental emergencies, such as hazardous material problems, beach rescues, traffic accidents, cliff rescues, high-rise incidents, wildland fires, major flooding, disaster operations, etc.

Stations, Equipment, and Staffing

NBFD has eight fire stations throughout the city in eight districts that encompass the immediate geographical area around the station. Overall, NBFD is staffed with 148 full-time employees, including 116 firefighting personnel, 38 of whom are on duty at any time, and 12 full-time lifeguards. The nearest fire station to the project site is Station #3 at 868 Santa Barbara Drive, approximately one driving mile from the project site. Station #3 is equipped with one fire engine, one ladder truck, one paramedic van, and one command vehicle, and staffed with two captain, two engineer, three firefighter, two firefighter paramedics, and one battalion chief.

Response Times

NBFD's response time objective for a priority incident requiring full personal protective equipment is less than 5 minutes and 20 seconds, 90 percent of the time. For priority incidents not requiring full personal protective equipment, the performance objective is less than 5 minutes, 90 percent of the time. Currently, the citywide average response time for priority incidents (with full personal protective equipment or without) is 5 minutes and 44 seconds, 64 percent of the time (Newport Beach 2016).

Funding

Funding for NBFD equipment and staffing comes primarily from the city's general funds. However, a property excise tax in Chapter 3.12 of the municipal code funds public improvements that include fire stations and equipment. Additionally, the fire department generates fees for various fire, life safety, and marine operations services that are budgeted each year to partially offset department expenses.

5.7.1.2 THRESHOLDS OF SIGNIFICANCE

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

FP-1 Result in a substantial adverse physical impact associated with the provisions 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 fire protection services.

5.7.1.3 ENVIRONMENTAL IMPACTS

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.7-1: The proposed project would not have adverse physical impacts on the city's fire protection services. [Threshold FP-1]

Impact Analysis: The proposed project is intended to serve the existing CdM campus operations and would not increase the enrollment or capacity of the CdM campus. The nighttime lighting, 1,000-seat bleachers, and synthetic turf field would increase the number of people and events on the CdM campus compared to the existing sports field. However, these students currently travel to other District facilities for games and practices; therefore, the proposed project would reallocate the service population and would not result in new overall demands for fire services. Therefore, no expanded or physically altered fire facilities, the construction of which could cause significant environmental impacts, would occur.

Although the proposed project could increase traffic congestion around the CdM campus during large spectator events, as discussed in Section 5.9, *Traffic and Transportation*, adequate parking is available to accommodate the expected number of spectators, and implementation of an "event traffic management plan" included as Appendix G2 would further ensure that traffic is properly managed if necessary. Additionally, the project site has streets fronts on all sides to provide good emergency vehicle access. The minimum fire access road width required by the California Fire Code is 20 feet and the City of Newport Beach requires minimum width of the street for public fire access to be 36 feet with parking allowed on both sides (Newport Beach 2016). Mar Vista Drive and Vista Del Oro are local streets that are approximately 40 feet wide, providing adequate width for an emergency vehicle to pass through even with street parking on both sides of the streets. The proposed project would not result in inadequate emergency access. Therefore, no significant traffic or parking impacts would occur that would cause adverse impacts to provision of adequate fire services. Impacts would not be significant.

5.7.1.4 CUMULATIVE IMPACTS

The geographic area for cumulative analysis of fire protection services is the NBFD service boundaries. The proposed project would serve the existing school's athletic program and would not increase the enrollment or capacity at the CdM campus. Therefore, the proposed project would not contribute to the need to expand fire protection services individually or cumulatively.

5.7.1.5 EXISTING REGULATIONS AND STANDARD CONDITIONS

- International Fire Code
- California Health and Safety Code
- City of Newport Beach Municipal Code
- Chapter 2.20 (Emergency Services)
- Chapter 9.04 (Fire Code)

5.7.1.6 LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Upon implementation of regulatory requirements and standard conditions of approval, the following impact would be less than significant: 5.7-1.

5.7.1.7 MITIGATION MEASURES

No mitigation measures are required.

5.7.1.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impacts are less than significant.

5.7.2 Police Protection

5.7.2.1 ENVIRONMENTAL SETTING

Existing Conditions

The Newport Beach Police Department (NBPD) provides police services, crime prevention and investigation, community awareness programs, and traffic control to the entire City of Newport Beach. All law enforcement agencies in Orange County provide mutual aid to one another. The primary agencies providing aid to the City would be the Orange County Sheriff's Department and the Costa Mesa Police Department. Police headquarters is at 870 Santa Barbara Drive, approximately one mile south of the project site.

Staffing and Equipment

The NBPD currently has 140 full-time sworn officers and 80 full-time civilian personnel. At this time, there are no specific plans for expansion of police facilities or addition of staff or equipment inventory (Newport Beach 2016).

Response Times

NBPD's goal response time for emergency calls is 4 minutes, with a current average response time of 3:42 minutes. For nonemergency calls, the goal response time is 6 minutes, with a current average response time of 5:48 minutes (Newport Beach 2016).

Funding

Funding for NBPD comes primarily from the city's general fund. In addition, NBPD generates revenue from various police services, such as penalty fees or service request fees. These sources of funding provide NBPD with adequate staffing, equipment, and facilities to give the City a high level of police services.

5.7.2.2 THRESHOLDS OF SIGNIFICANCE

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

PP-1 Result in a substantial adverse physical impact associated with the provisions 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 police protection services.

5.7.2.3 ENVIRONMENTAL IMPACTS

Impact 5.7-2: The proposed project would not have adverse physical impacts on the city's police protection services. [Threshold PP-1]

Impact Analysis: Police-service needs are related to the size of the population and geographic area served, the number and types of calls for service, and other community characteristics. Although the project would not result in an increase in area population, school enrollment, or campus capacity, it would enable the campus to accommodate athletic events and practices that were previously held at other facilities. The proposed project would result in increased vehicle and pedestrian traffic on local streets before and after these events. The District would have support staff and security personnel for such events to assist on-campus operation. And in addition, NBPD's Explorers or similar staff have been recommended to provide additional traffic management for off-campus circulation. The NBPD Explorers are young men and women between the ages of 14 and 21 who learn about all aspects of law enforcement, such as CSI, tactics, DUI, gun safety, radio codes, and more. With assistance of other police personnel, they volunteer their time for community services such as crowd control, parking control, and traffic directing. As discussed in Section 5.9, *Traffic and Transportation*, it is anticipated that four or five NBPD Explorers or similar staff would be necessary to serve a maximum capacity event at the CdM campus. Such an increase in police services would be temporary, and it would not require expanded or altered police facilities that could result in physical environmental impacts. The proposed project would slightly increase the demand for police services, but impacts would be less than significant.

5.7.2.4 CUMULATIVE IMPACTS

The geographic area for cumulative analysis of police protection services is the NBPD service boundaries. The proposed project would serve the existing school's athletic program and would not increase the enrollment or capacity at CdM campus. Although the increased number of events at CdM campus would increase the demands for NBPD services, it would be temporary basis and would not require permanently expanded or altered police facilities. No significant environmental impacts would occur in order to maintain acceptable police protection service ratios or response times individually or cumulatively. Impacts would be less than significant.

5.7.2.5 EXISTING REGULATIONS AND STANDARD CONDITIONS

There are no applicable regulations regarding police services.

5.7.2.6 LEVEL OF SIGNIFICANCE BEFORE MITIGATION

The following impact would be less than significant: 5.7-2.

5.7.2.7 MITIGATION MEASURES

No mitigation measures are required.

5.7.2.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impacts are less than significant.

5.7.2.9 REFERENCES

Newport Beach, City of. 2006, July. City of Newport Beach General Plan Update EIR: Public Services. http://newportbeachca.gov/PLN/General_Plan/GP_EIR/Volume_1/16_Sec4.11_Public_Services.pdf.

———. 2011, September 9. "Public Services and Facilities." Section 4.14 in Newport Banning Ranch Draft Environmental Impact Report. Volume I. http://www.newportbeachca.gov/pln/CEQA_REVIEW/Newport%20Banning%20Ranch%20DEIR/Newport%20Banning%20Ranch_DEIR/Newport%20Banning%20Ranch_DEIR_September%202011/4.14%20Public%20Services%20and%20Facilities.pdf.

———. 2014, March. City of Newport Beach General Plan Land Use Element Draft Supplemental Environmental Impact Report. Volume I. SCH No. 2013101064. Prepared by PlaceWorks.

———. 2015, May. Budget Detail Adopted for the Fiscal Year 2015-16. http://www.newportbeachca.gov/home/showdocument?id=21402.

———. 2016a, July 12 (revised). City of Newport Beach, Community Development Department, Life Safety Services, Guidelines and Standards, Guideline C.01 - Emergency Fire Access: Roadways, Fire Lanes, Gates and Barriers. http://newportbeachca.gov/home/showdocument?id=18653

———. 2016b, August. Museum House Environmental Impact Report. Prepared by PlaceWorks.

5. Environmental Analysis
PUBLIC SERVICES

This page intentionally left blank.

5.8 RECREATION

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for implementation of the proposed project to impact public parks and recreational facilities.

5.8.1 Environmental Setting

5.8.1.1 REGULATORY BACKGROUND

State

Quimby Act of 1975

The Quimby Act of 1975 (California Government Code § 66477) requires the dedication of land and/or fees for public park and recreational purposes as a condition of approval for a tentative map or parcel map. The Quimby Act establishes procedures that can be used by local jurisdictions to provide neighborhood and community parks and recreational facilities and services for new residential subdivisions. It allows cities and counties to require up to five acres of park for every 1,000 residents.

California Public Park Preservation Act

The primary instrument for protecting and preserving parkland is California's Public Park Preservation Act of 1971. Under the Public Resources Code, cities and counties may not acquire any real property that is in use as a public park for any nonpark use unless compensation, land, or both are provided to replace the parkland acquired. This ensures no net loss of parkland and facilities.

Local

City of Newport Beach Municipal Code

The municipal code identifies land use categories, development standards, and other general provisions that ensure consistency between the city's general plan and proposed projects. The following provisions from the municipal code focus on park and recreational facilities impacts:

- **Chapter 3.12 (Property Development Tax).** Funds public improvements and facilities—consisting of fire stations and fire-fighting equipment, public City libraries, and public City parks—that cannot be met by ordinary city revenues The excise tax is imposed upon the construction and occupancy of residential, commercial, and industrial units or buildings in the city.

- **Chapter 11.04 (Parks, Park Facilities, and Beaches).** Outlines the City's policy to allow maximum public use of public parks, park facilities, and beaches subject to rules and regulations necessary for administration and maintenance.

- **Chapter 19.52 (Park Dedications and Fees).** Intended to provide the City with land dedication, in-lieu fees, or a combination of both, for park and/or recreational purposes in conjunction with the approval of new residential development.

- **Section 19.52.040 (Parkland Standard).** States that the City's park dedication standard shall be five acres per 1,000 residents.

- **Section 19.52.070 (Fee in Lieu of Dedication).** Computes the fee by multiplying the fair market value per acre times the acreage of land that would otherwise be dedicated, pursuant to Section 19.52.050.

City of Newport Beach General Plan Policy

The Newport Beach General Plan Recreation Element provides guidance to ensure the provision of sufficient parks and recreation facilities that are appropriate for the residential and business population of Newport Beach. The following policy is relevant to potential recreation impacts of the proposed project:

- **Policy R 1.1.** Require developers of new residential subdivisions to provide parklands at five acres per 1,000 persons, as stated in the City's Park Dedication Fee Ordinance, or to contribute in-lieu fees for the development of public recreation facilities meeting demands generated by the development's resident population, as required in the City's Park Dedications Fees Ordinance.

5.8.1.2 EXISTING CONDITIONS

The City of Newport Beach offers approximately 590 acres of developed parks and recreational facilities and 28.8 acres of active beach (North Star Beach and Corona del Mar State Beach), for a total of approximately 619 acres (Newport Beach 2016). Parks range in size from less than an acre to more than 200 acres and offer various amenities and recreational activities, such as playgrounds, sports fields, picnic areas, barbecue pits, community centers, and an aquatic center. The city has multiuse trails for hiking, biking, and equestrian activities, and also has park and community center facilities available. Also, the above acreage does not include the majority of beaches fronting the Pacific Ocean, Newport Harbor, and Upper Newport Bay, which provide additional recreational opportunities.

Pursuant to Section 19.52.040 of the municipal code, Newport Beach's parkland standard is five acres per 1,000 residents. The city provides approximately 619 acres of park and beach amenities (Newport Beach 2016); therefore, the park-to-population ratio is 7.3 acres of parkland per 1,000 residents based on the city's estimated 2016 population of 84,270 (DOF 2016).

Funding for city parks and recreational facilities comes primarily through general funds (property tax revenues), building excise tax funds, and grant funds. Additionally, Chapter 19.52 of the municipal code outlines a park fee imposed on all dwelling unit developments if the project site is unsuitable for park development or the developer decides to pay the fee rather than dedicate land to future park expansion. The fee is determined by Section 19.52.070 (Fee in Lieu of Dedication) and is used solely for the acquisition, development, improvement, and maintenance of public parks and recreational facilities, as designated in the annual capital improvement program.

Eastbluff Newport North Service Area Parks

The Newport Beach Recreation Department divides the city into different park service areas. The service areas were created to determine whether particular areas in the City are deficient in parks and recreational facilities and to identify acquisitions or improvements that would provide residents with equal recreational opportunities. As shown on Figure 5.8-1, *Eastbluff Newport North Service Area*, the project site is within the Eastbluff Newport North Service Area 7, which includes Big Canyon Park (39.16 acres), Bonita Creek Park (14.24 acres), Eastbluff Park (13.20 acres), and portions of Upper Newport Bay Regional Park. Big Canyon Park and Upper Newport Bay Regional Park do not provide any amenities other than trails and vista points. Bonita Creek Park and community center provides a number of amenities, such as athletic fields, two ball diamonds, a basketball half court, picnic tables, play equipment, community room, kitchen, restrooms, water fountains, and a parking lot. Eastbluff Park is equipped with athletic fields, ball diamond, barbecue, picnic tables, play equipment, restrooms, water fountains, and a parking lot.

5.8.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project:

R-1 Would 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.

R-2 Includes recreational facilities or requires the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

The Initial Study, included as Appendix A, substantiates that impacts associated with the following threshold would be less than significant:

- Threshold R-2

This impact will not be addressed in the following analysis.

5.8.3 Environmental Impacts

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.8-1: The proposed project would increase the use of existing park and recreational facilities, but would not result in substantial physical deterioration of the facilities. [Threshold R-1]

Impact Analysis: Because the demand for neighborhood and regional parks and other recreational facilities is generally created by residential uses, the redevelopment of the existing CdM sports field would not directly result in increased demand on existing recreational facilities. However, the existing CdM sports field is currently open for community use outside of normal school uses, and use of the redeveloped field would be limited to authorized users, per District Board Policy 1330(a) under the Civic Center Act. Therefore, the restricted use of the proposed Sports Field would eliminate a currently well-used recreational amenity, which could lead to an increase in the use of other recreational facilities in the city. There is no joint use agreement between the city and the District for the use of CdM sports field, and restricted use of the proposed Sports

Field would not affect the city's overall parkland per resident ratio. Residents would need to use nearby Big Canyon Park, Bonita Creek Park, Eastbluff Park, and Upper Newport Bay Regional Park, as shown in Figure 5.8-1, *Eastbluff Newport North Service Are*a. The Eastbluff service area provides approximately 66.6 acres of park and recreational acreage plus the Upper Newport Bay Regional Park. Although residents may experience inconvenience from the restricted use of the proposed Sports Field, other recreational facilities such as natural trails and baseball fields would be available a short distance away. The target users for these city facilities are the residents near the CdM campus, and the increase in use due to project implementation would not result in substantial physical deterioration of the facilities. Impacts would be less than significant.

5.8.4 Cumulative Impacts

The area considered for cumulative impacts is the City of Newport Beach. Demand for new recreational facilities is typically generated by population growth. The proposed project would not increase the enrollment or capacity of the CdM campus to create additional demands for recreational facilities in the city. The CdM sports field served as a bonus amenity for community members. Therefore, the proposed project would not affect the city's overall parkland to resident ratio or result in substantial physical deterioration of the city's recreational facilities. The project's contribution to cumulative park and recreation impacts would be less than significant and would not be cumulatively considerable.

5.8.5 Existing Regulations

State

- Quimby Act (California Government Code Section 66477)
- California Public Park Preservation Act of 1971(Public Resource Code Sections 5400–5409)

Local

- City of Newport Beach Municipal Code
  - Chapter 19.52 (Park Dedications and Fees)
  - Chapter 11. 04 (Parks, Park Facilities, and Beaches)

5.8.6 Level of Significance Before Mitigation

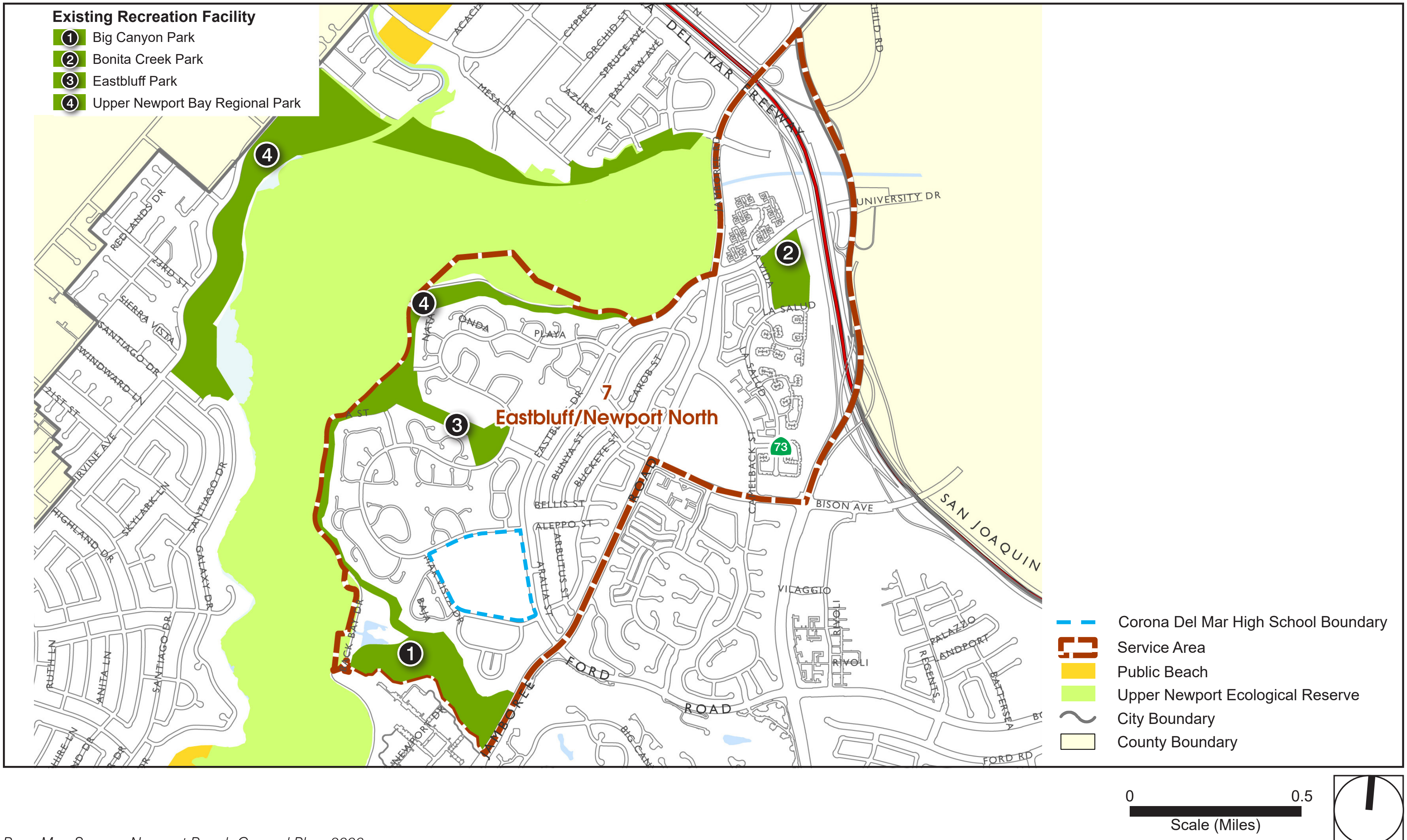
Upon implementation of regulatory requirements, the following impact would be less than significant: 5.8-1.

5.8.7 Mitigation Measures

No mitigation measures are required.

Figure 5.8-1 - Eastbluff Newport North Service Area

5. Environmental Analysis



Base Map Source: Newport Beach General Plan, 2006

This page intentionally left blank.

5.8.8 Level of Significance After Mitigation

Impacts would be less than significant.

5.8.9 References

City of Newport Beach. 2006a. General Plan Recreation Element. http://www.newportbeachca.gov/government/departments/community-development/planning-division/general-plan-codes-and-regulations/general-plan.

________. 2006b, July 25. General Plan Environmental Impact Report. http://www.newportbeachca.gov/government/departments/community-development/planning-division/general-plan-codes-and-regulations/general-plan/general-plan-environmental-impact-repor.

________. 2016, March 16. Master List of Parks RSS Facilities. Excel Spreadsheet. City of Newport Beach Recreation & Senior Services Department.

PlaceWorks. 2016, August. Museum House Project Draft Environmental Impact Report.

Department of Finance (DOF). 2016, May. Table E-1: Population Estimates for Cities, Counties and the State with Annual Percent Change, January 1, 2015 and 2016. State of California.

5. Environmental Analysis
RECREATION

This page intentionally left blank.

5.9 TRANSPORTATION AND TRAFFIC

This section of the draft environmental impact report (DEIR) evaluates the potential for implementation of the Corona del Mar MS/HS Sports Field Project to result in transportation and traffic impacts in the City of Newport Beach. The analysis in this section is based in part on the following technical report:

- *Corona del Mar High School Sports Field Project Traffic Study*, IBI Group, March 26, 2016. (Appendix G1)
- *Corona del Mar High School Sports Field: Event Traffic Management Plan*, IBI Group, November 4, 2016. (Appendix G2)

Complete copies of these studies are in the appendices to this Draft EIR.

5.9.1 Environmental Setting

The project site is approximately a mile southwest of the State Route (SR) 73 and the project area is designated "Governmental, Educational and Institutional Facilities" by the Newport Beach General Plan. Adjacent uses are defined by the general plan as Single-Unit Residential Attached to the west and north and Single-Unit Residential Detached to the east; the church to the south is Our Lady Queen of Angels Catholic Church.

5.9.1.1 EXISTING ROADWAY NETWORK

Major roadways in the project traffic study area are described below. The discussion focuses on roadways that are approaches to the study intersections or directly affected by the proposed project. The descriptions of the lane configurations are based on designations in the general plan circulation element and may not reflect existing configurations.

- **SR-73:** SR-73 is northeast of the proposed project site, a freeway/limited-access toll highway that extends north-south through Orange County. Access to the site from SR-73 is via northbound and southbound on-ramps and off-ramps at Bristol Street (north and south), MacArthur Boulevard, Bison Avenue, and Bonita Canyon Drive.
- **Pacific Coast Highway:** Pacific Coast Highway is south of the proposed project site and is designated as an east-west Principal Arterial (eight-lane divided) west of Jamboree Road and a Major Arterial (six-lane divided) east of Jamboree. The east- and westbound segments fluctuate between three to four lanes west of Jamboree Road, and both have three lanes east of Jamboree Road. Adjacent land use consists of primarily residential and some commercial. The speed limit is 50 mph. There are bike lanes and no street parking available. The project site can be reached using Jamboree Road.
- **MacArthur Boulevard:** MacArthur Boulevard is east of the proposed project site and is designated as a north-south Principal Arterial (eight-lane divided) north of Ford Road/Bonita Canyon Drive and a Major Arterial (six-lane divided) south of Ford Road. The north- and southbound segments fluctuate between three to five lanes north of Ford Road/Bonita Canyon Drive, and both have three lanes south of Ford

Road/Bonita Canyon Drive. Adjacent land uses consist primarily of residential, with some commercial nearer to SR-73. The speed limit is generally 55 mph with a stretch of 60 mph between SR-73 and Jamboree Road. There are bike lanes available south of SR-73 and no street parking available. MacArthur Boulevard provides access to SR-73, and the project site can be reached via Jamboree Road, Bison Avenue, or Ford Road.

- **Jamboree Road:** Jamboree Road is east of the proposed project site and is designated a north-south Major Arterial (six-lane divided). The north- and southbound segments fluctuate between three to five lanes north of Bayview Way, and both have three lanes south of Bayview Way. Adjacent land uses consist primarily of residential, with commercial near SR-73 and scattered private institutions and industrial. The speed limit is 55 mph. On-street parking is not available. Class II bike lanes are provided intermittently on Jamboree Road in the study area. The project site can be reached via Eastbluff Drive.

- **San Joaquin Hills Road:** San Joaquin Hills Road is south of the proposed project site and is designated an east-west Major Arterial (six-lane divided). The east- and westbound segments are both primarily three lanes. Adjacent land uses consist primarily of residential to the northeast, with commercial to the southwest. The speed limit is 50 mph. There are no bike lanes or street parking available.

- **University Drive:** University Drive is north of the proposed project site and is designated an east-west Major Highway (four lane divided) between Jamboree Road and MacArthur Boulevard. The east- and westbound segments are two to three to lanes each. Adjacent land uses consist of single-unit residential detached, multiple unit residential, and parks and recreation. The speed limit is 50 mph. There are bike lanes and no street parking available. University Drive turns into Eastbluff Drive west of Jamboree Road. The project site can be reached using Eastbluff Drive.

- **Ford Road:** Ford Road is south of the proposed project site and is designated an east-west Major Highway (four lane divided). The east- and westbound segments are two lanes each. Adjacent land uses consist of single-unit residential detached, multiple unit residential, and parks and recreation. The speed limit is 50 mph. There are bike lanes and no street parking available. Ford Road turns into Eastbluff Drive west of Jamboree Road and turns into Bonita Canyon Drive east of MacArthur Boulevard. The project site can be reached using Eastbluff Drive.

- **Bonita Canyon Drive:** Bonita Canyon Drive is southeast of the proposed project site and is designated an east-west Major Highway (four lane divided). The east- and westbound segments are two lanes each. Adjacent land uses consist of single-unit residential detached, multiple unit residential, neighborhood commercial, private institutions, and parks and recreation. The speed limit is 50 mph. There are bike lanes and no street parking available. Bonita Canyon Road turns into Ford Road west of MacArthur Boulevard. The project site can be reached using Ford Road.

- **Bison Avenue:** Bison Avenue is northeast of the proposed project site and is designated an east-west Major Highway (four lane divided). The east- and westbound segments are two to three lanes each. Adjacent land uses consist of single-unit residential detached, multiple unit residential, commercial, private institutions, public facilities, and open space. The speed limit is 45 to 50 mph. There are no bike lanes west of MacArthur Boulevard and no street parking available. Bison Avenue provides access to SR-73.

- **Bristol Street (North):** Bristol Street (North) is north of the proposed project site and is designated a north Major Highway (four lane divided). The road travels in one direction northbound and has 3 lanes. Adjacent land use consists of commercial. The speed limit is 45 mph. There are bike lanes and no street parking available.

- **Bristol Street (South):** Bristol Street (South) is north of the proposed project site and is designated a south Major Highway (four lane divided). The road travels in one direction southbound and has 4 lanes. Adjacent land use consists of commercial. The speed limit is 45 mph. There are bike lanes and no street parking available. Bristol Street (South) provides access to SR-73.

- **Santa Cruz Drive:** Santa Cruz Drive is south of the proposed project site and is designated a north-south Major Highway (four lane divided). The north- and southbound segments are two to three lanes each. Adjacent land use consists of commercial. The speed limit is 35 mph. There are bike lanes and no street parking available.

- **Santa Rosa Drive:** Santa Rosa Drive is south of the proposed project site and is designated a north-south Major Highway (four lane divided). The north- and southbound segments are three lanes each. Adjacent land use consists of commercial. The speed limit is 30 mph. There are no bike lanes and no street parking available.

Traffic Study Intersections

Eighteen study area intersections have been selected for traffic analysis based on input from both the District and city staff. The existing (2015) lane geometry and signal controls for each intersection are illustrated on Figures 5.9-1a and 5.9-1b, *Traffic Study Area Intersection Lane Geometry and Controls*.

1. Eastbluff Drive/Vista del Oro
2. Eastbluff Drive/Mar Vista Drive
3. Eastbluff Drive/Alba Street
4. Jamboree Road/Eastbluff Drive-Ford Road
5. Jamboree Road/University Drive/Eastbluff Road
6. MacArthur Boulevard/Ford Road-Bonita Canyon Drive
7. MacArthur Boulevard/Bison Avenue
8. Jamboree Road/MacArthur Boulevard
9. Jamboree Road/Bristol Street (North)
10. Jamboree Road/Bristol Street (South)
11. Jamboree Road/Bayview Way
12. Jamboree Road/Bison Avenue
13. Jamboree Road/San Joaquin Hills Road

14. Jamboree Road/Santa Barbara Drive
15. Jamboree Road/Pacific Coast Highway
16. Santa Cruz Drive/San Joaquin Hills Road
17. Santa Rosa Drive/San Joaquin Hills Road
18. MacArthur Boulevard/San Joaquin Hills Road

5.9.1.2 METHODOLOGY

The traffic analysis for the proposed project includes an assessment of traffic conditions at the adjacent and surrounding circulation network for the following analysis time frames:

- Existing (2015)
- Opening Year (2019)
- TPO Analysis Year (2020)

The analysis methodology and performance criteria used in this analysis have been prepared in accordance with the City of Newport Beach Traffic Phasing Ordinance (TPO) traffic impact study guidelines, adopted November 24, 2015, and the County of Orange Congestion Management Program (CMP).

Signalized Intersections

Traffic conditions at signalized traffic study intersections are analyzed using the Intersection Capacity Utilization (ICU) methodology, which is used by both the City of Newport Beach and the Orange County CMP. The ICU methodology is based on intersection volume-to-capacity (V/C) ratios. The ICU value for each movement is the observed or forecast volume divided by the saturation flow volume (defined at 1,600 vehicles per hour per lane). The intersection ICU value is the sum of the highest ICU values on each leg of the intersection (left, through, or right). ICU values are usually expressed as a decimal (e.g., 0.74), and 1.00 represents saturated conditions, where the volume of traffic flow is equal to the capacity.

The efficiency of traffic operations is measured in terms of Level of Service (LOS). The LOS refers to the quality of traffic flow along roadways and at intersections. Evaluation of roadways and intersections involves the assignment of grades from A to F, with LOS A representing the highest level operating conditions and LOS F representing extremely congested and restricted operations. Each letter grade corresponds to a range of V/C values, which are described for intersections operating under signal control in Table 5.9-1, *Categories of LOS for Signalized Intersections*.

Table 5.9-1 Categories of LOS for Signalized Intersections

LOS	Description	ICU Value
A	At level of service A there are no cycles that are fully loaded, and few are even close to loaded. No approach phase is utilized by traffic and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turning movements are easily made, and nearly all drivers find freedom of operation.	0.00–0.60
B	Level of service B represents stable operation. An occasional approach phase is fully utilized and a substantial number are approaching full use. Many drivers begin to feel somewhat restricted within platoons of vehicles.	0.61–0.70
C	In level of service C stable operation continues. Full signal cycle loading is still intermittent, but more frequent. Occasionally drivers may have to wait through more than one red signal indication, and back-ups may develop behind turning vehicles.	0.71–0.80
D	Level of service D encompasses a zone of increasing restriction, approaching instability. Delay to approaching vehicles may be substantial during short peaks within the peak period, but enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive back-ups.	0.81–0.90
E	Level of service E represents the most vehicles that any particular intersection approach can accommodate. At capacity (V/C = 1.00) there may be long queues of vehicles waiting upstream of the intersection and delays may be great (up to several signal cycles).	0.91–1.00
F	Level of service F represents jammed conditions. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration; hence, volumes carried are not predictable. V/C values are highly variable, because full utilization of the approach may be prevented by outside conditions.	>1.000

Source: Orange County Congestion Management Program.

Intersection level of service analysis is performed using TRAFFIX software (v. 8.0). TRAFFIX is a network-based interactive computer program that enables calculation of levels of service at signalized and unsignalized intersections for multiple locations and scenarios. TRAFFIX also calculates signal timing (green times and cycle lengths) and maximum queue lengths to assist in evaluating signalized intersections.

Unsignalized Intersections

Intersection analysis for unsignalized intersections has been conducted using the Highway Capacity Manual (HCM) methodology, which returns a delay value, expressed in terms of the average seconds of delay per vehicle or the worst-approach delay per vehicle depending on the intersection type. The two types of unsignalized intersections include two-way stop controlled and all-way stop controlled. The HCM methodology estimates the delay based on the worst approach at two-way-stop intersections and reports the average delay at all-way-stop intersections. The delay range for unsignalized intersections is different from the delay range for signalized intersections, primarily due to driver expectation. The expectation is that signalized intersections are designed to carry higher volumes of traffic and therefore higher levels of delay are acceptable. The level of service criteria for unsignalized intersections are presented in Table 5.9-2, *Levels of Service for Unsignalized Intersections*.

5. Environmental Analysis
TRANSPORTATION AND TRAFFIC

Table 5.9-2 Levels of Service for Unsignalized Intersections

LOS	Description	ICU Value in Seconds
A	Little or no delays	0–10
B	Short traffic delays	10–15
C	Average traffic delays	15–25
D	Long traffic delays	25–35
E	Very long traffic delays	35–50
F	Extreme traffic delays with intersection capacity exceeded	50 or more

Source: Highway Capacity Manual (2010), Chapter 17.

Traffic Phasing Ordinance Analysis: 1 Percent Methodology

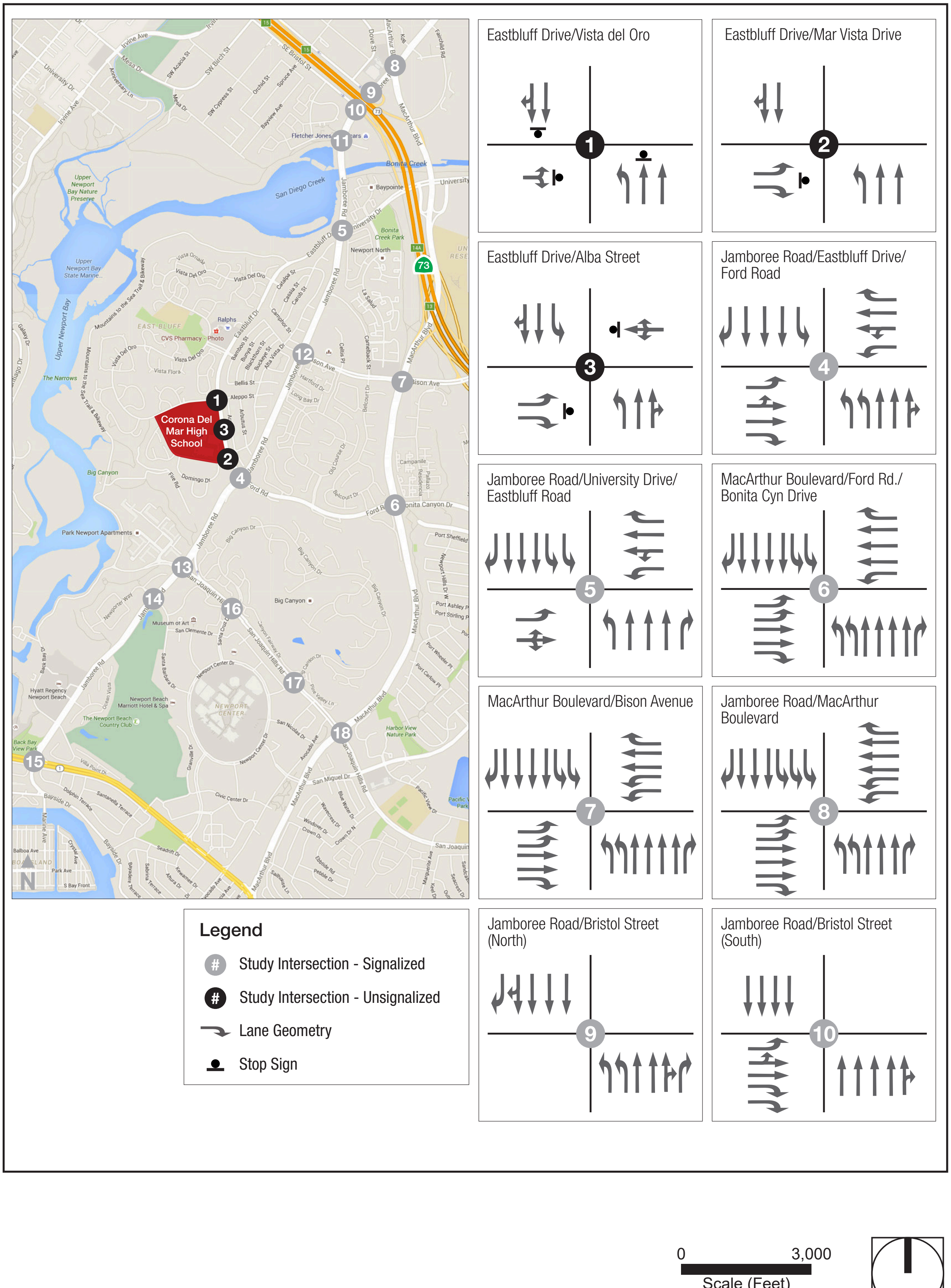
The Newport Beach TPO first requires determination of whether project trips would increase traffic volumes on any leg of a study area intersection by 1 percent or more during the morning or evening peak hour one year after project completion. If project trips do not increase traffic by 1 percent or more of the existing plus growth (Year 2020) plus cumulative projects volumes on any leg of any primary intersection during the evening peak hour one year after project completion, no further analysis is required. If project trips do increase traffic by more than 1 percent, an intersection capacity utilization analysis of the intersection is required.

5.9.1.3 EXISTING TRAFFIC CONDITIONS

Existing Traffic Volumes

The proposed Sports Field Project is not expected to generate a significant number of vehicle trips during the AM peak hour because sports field events are anticipated to occur during weekday evenings. Therefore, the time period selected for analysis in this study is the weekday PM peak period only (4:00 to 6:00 pm). Manual counts of intersection turning movements were collected in 15-minute intervals from 4:00 to 6:00 pm on Friday, October 30th, 2015. The full vehicle, pedestrian, and bicycle counts are available in Appendix A of the Traffic Study (Appendix G1 to the DEIR). Existing (2015) PM peak hour turning movement count volumes are presented in Figures 5.9-2a and 5.9-2b, *Existing (2015) Traffic Volumes, PM Peak Hour*.

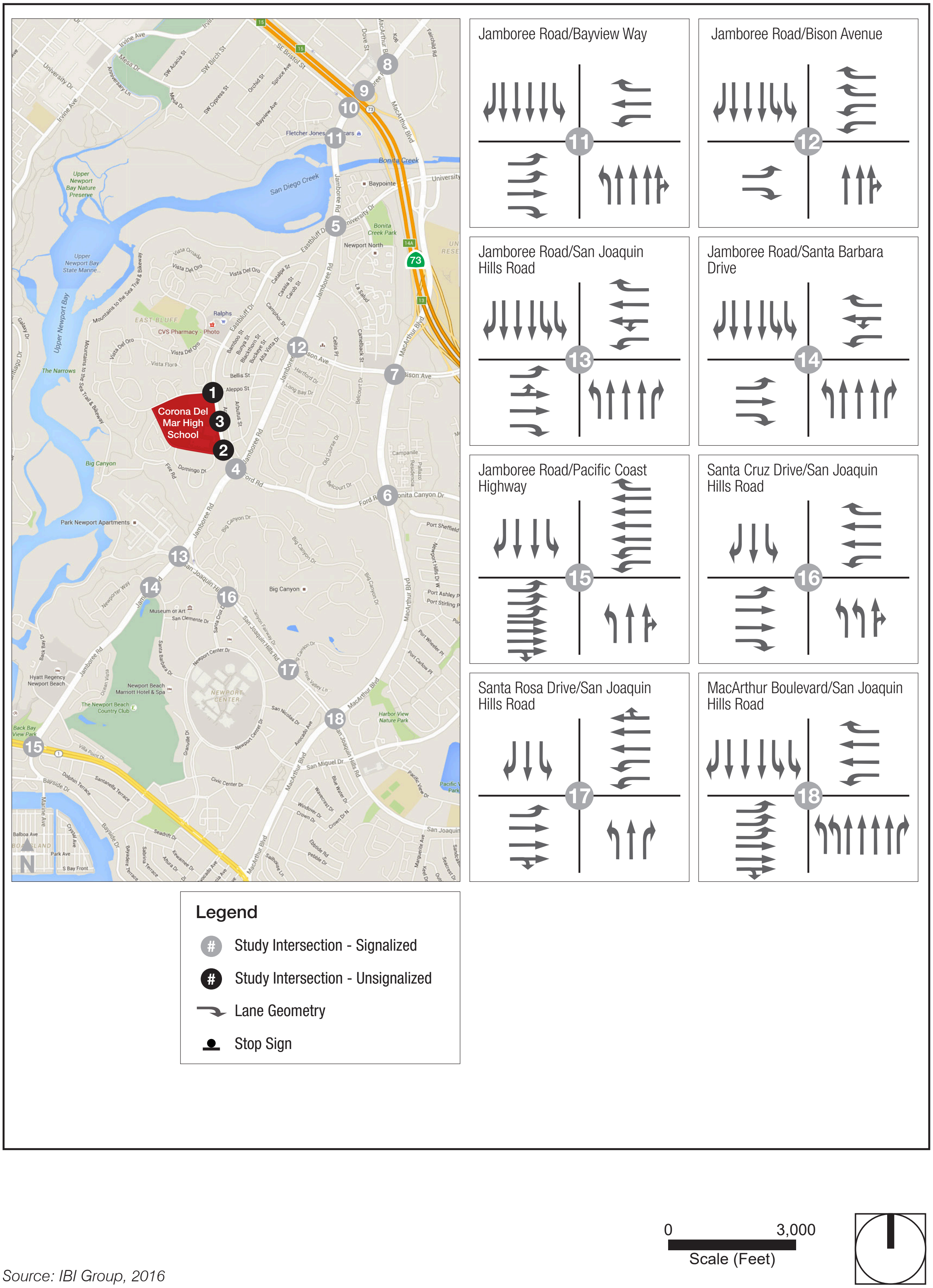
Figure 5.9-1a - Study Intersections Geometry and Control



Source: IBI Group, 2016

This page intentionally left blank.

Figure 5.9-1b - Study Intersections Geometry and Control

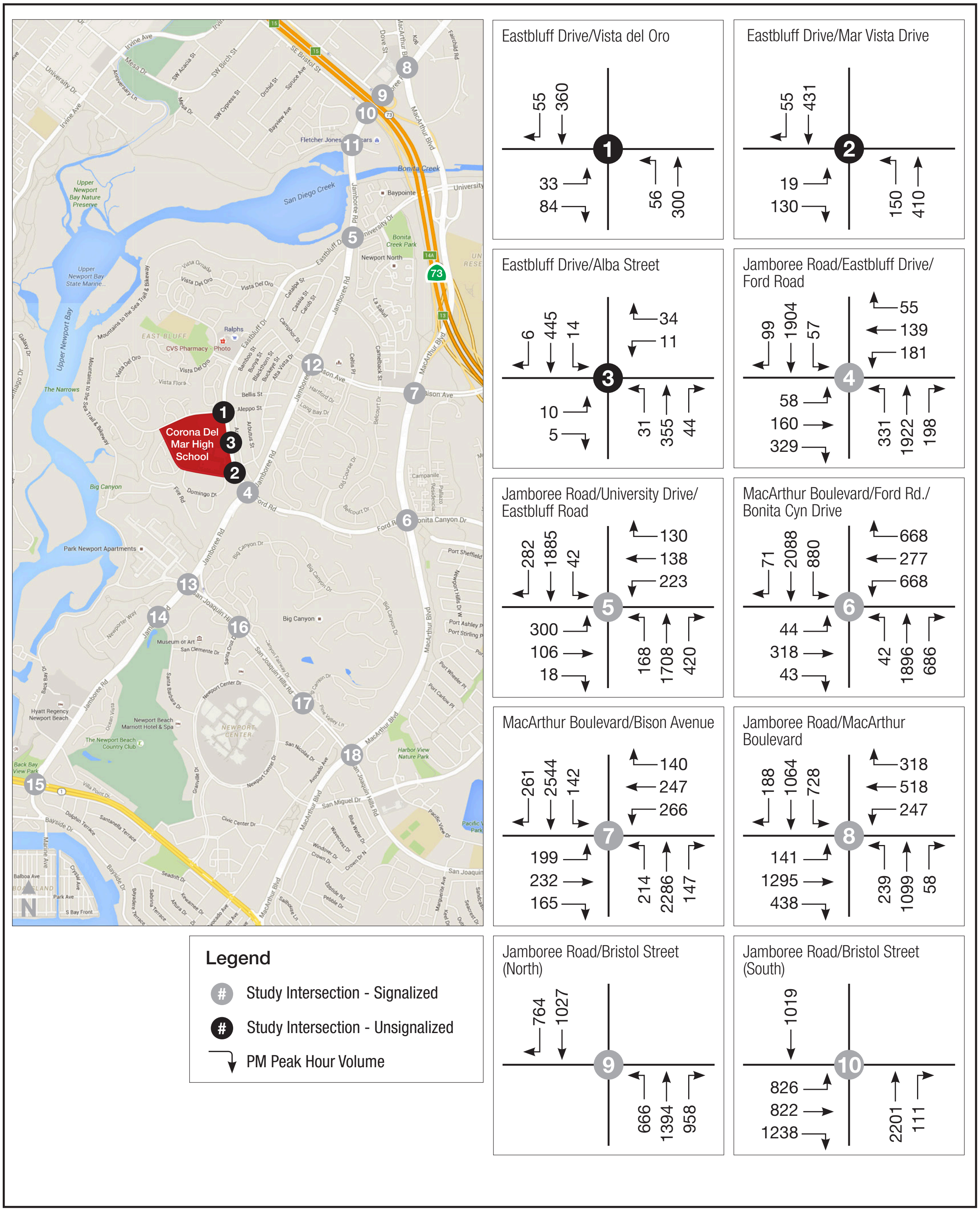


Source: IBI Group, 2016

5. Environmental Analysis
TRANSPORTATION AND TRAFFIC

This page intentionally left blank.

Figure 5.9-2a - Existing (2015) Traffic Volumes - PM Peak Hour



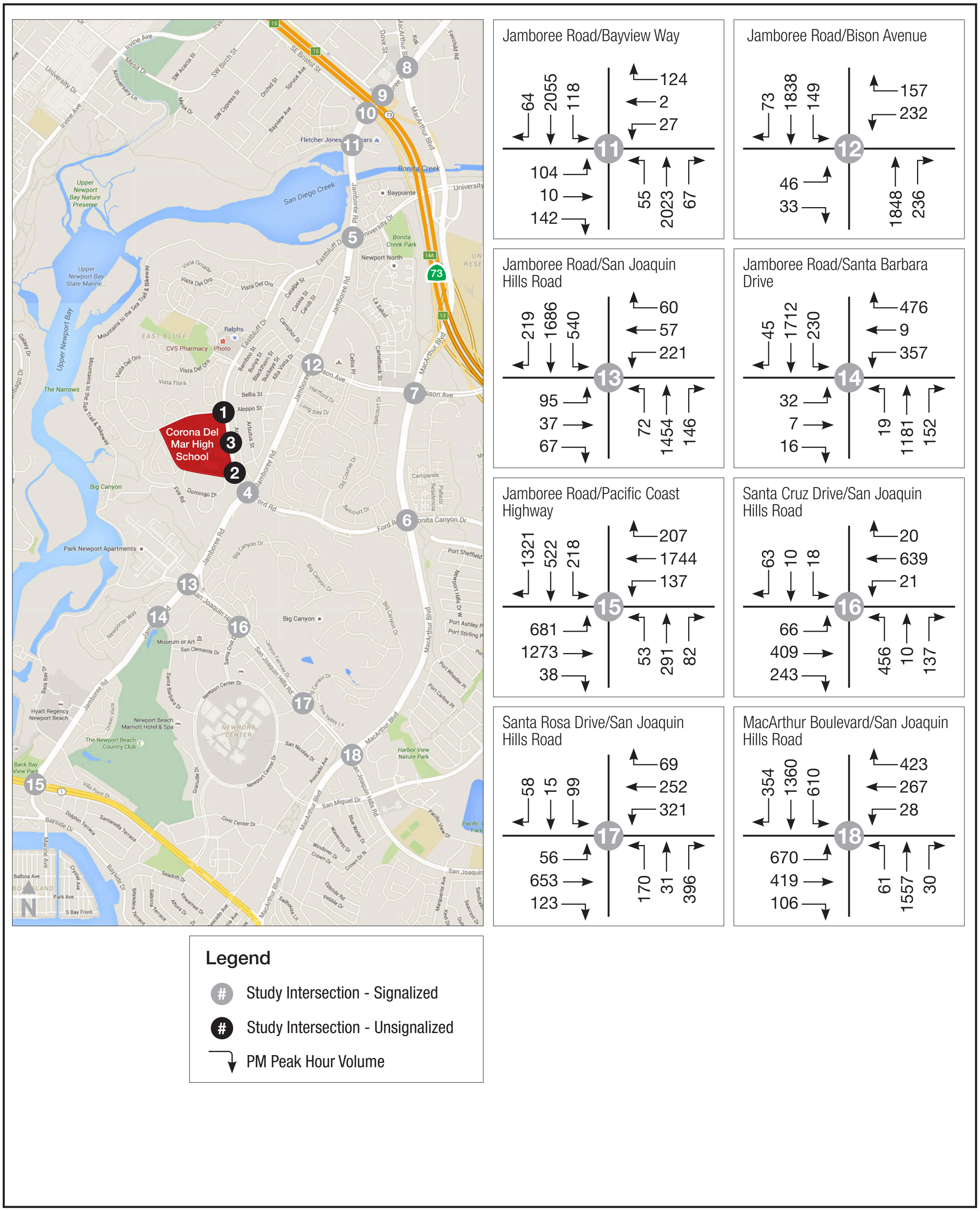
0 3,000
Scale (Feet)

Source: IBI Group, 2016

This page intentionally left blank.

Figure 5.9-2b - Existing (2015) Traffic Volumes - PM Peak Hour

5. Environmental Analysis



0 3,000
Scale (Feet)

Source: IBI Group, 2016

This page intentionally left blank.

Existing Intersection LOS

A level of service analysis was conducted to evaluate existing intersection operations during the weekday PM peak hour. Table 5.9-3, *Existing Intersection LOS, PM Peak Hour*, summarizes the existing LOS at the traffic study area intersections. As shown, all study area intersections operate at acceptable LOS under Existing (2015) conditions except for one:

- 6. MacArthur Boulevard / Ford Road-Bonita Canyon Drive (LOS E).

Table 5.9-3 Existing Intersection LOS, PM Peak Hour

ID	Unsignalized Intersections	Traffic Control	PM Peak Hour Delay (in secs)	PM Peak Hour LOS
1	Eastbluff Drive & Vista del Oro	AWSC	9.5	A
2	Eastbluff Drive & Mar Vista Drive	TWSC	12.1	B
3	Eastbluff Drive & Alba Street	TWSC	15.8	C
ID	**Signalized Intersections**	**Traffic Control**	**PM Peak Hour Delay**	**PM Peak Hour LOS**
4	Jamboree Road & Eastbluff Drive/Ford Road	Signal	0.777	C
5	Jamboree Road & University Drive /Eastbluff Drive	Signal	0.860	D
6	MacArthur Boulevard & Ford Road/Bonita Canyon Drive	Signal	**0.982**	**E**
7	MacArthur Boulevard & Bison Avenue	Signal	0.780	C
8	Jamboree Road & MacArthur Boulevard	Signal	0.830	D
9	Jamboree Road & Bristol Street (North)	Signal	0.527	A
10	Jamboree Road & Bristol Street (South)	Signal	0.796	C
11	Jamboree Road & Bayview Way	Signal	0.670	B
12	Jamboree Road & Bison Avenue	Signal	0.734	C
13	Jamboree Road & San Joaquin Hills Road	Signal	0.724	C
14	Jamboree Road & Santa Barbara Drive	Signal	0.846	D
15	Jamboree Road & Pacific Coast Highway	Signal	0.827	D
16	Santa Cruz Drive & San Joaquin Hills Road	Signal	0.583	A
17	Santa Rosa Drive & San Joaquin Hills Road	Signal	0.471	A
18	MacArthur Boulevard & San Joaquin Hills Road	Signal	0.657	B

TWSC = two-way stop control; AWSC = all-way stop control
Bold and Shaded = unacceptable LOS

5.9.1.4 OPENING YEAR (2019) TRAFFIC CONDITIONS

The proposed project is scheduled to be operational by Year 2019. The future baseline Opening Year (2019) conditions in the traffic study area consist of 1) existing traffic, based on 2015 count data, 2) background ambient traffic growth per year, and 3) traffic from planned developments (i.e., cumulative projects). Cumulative projects consist of committed projects (approved projects in the City of Newport Beach) that are anticipated to be open and operational by Year 2019. The methodology to develop Opening Year (2019) baseline traffic volumes is described below.

5. Environmental Analysis
TRANSPORTATION AND TRAFFIC

- **Ambient Traffic Growth.** Opening Year (2019) traffic volumes were developed by applying a linear annual ambient traffic growth rate of 1 percent (a total of 4 percent for four years) to the existing (2015) traffic volumes. The growth rate has been applied based on current and previous studies in the City of Newport Beach to account for area-wide growth not captured by cumulative projects.

- **Cumulative Projects.** Seventeen approved projects (anticipated to be open and operational by Year 2019 based on discussions with City staff) are summarized in Table 5.9-4, *Cumulative Projects List* and shown in Figure 4-6, *Cumulative Project Location.* A detailed list of the cumulative projects with their respective trip generation rates is provided in Appendix D of the Traffic Study (Appendix G1 to the DEIR).

Table 5.9-4 Cumulative Projects List

ID	Project	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
1	ENC Preschool (PA2015-079)	19	17	35	16	18	35	195
2	Newport Center Villas (PA2014-213)	-27	-10	-37	-21	-35	-56	-614
3	Balboa Marina Expansion (PA2012-103) (PA2015-113)	99	75	174	176	175	351	2,182
4	Birch Newport Executive Center (PA2014-121)	121	31	151	63	164	226	2,293
5	Uptown Newport Mixed Use Development (PA2011-134) – Phase 1	46	276	319	304	139	443	5,011
6	MacArthur at Dolphin-Striker Way (PA2010-135)	2	3	5	-18	4	-14	-192
7	Newport Beach Country Club, Inc. (PA2008-152)	69	36	105	69	72	140	1,732
8	Westcliff Medical (PA2013-154)	67	27	93	59	84	143	1,001
9	Koll Center Office Building (PA2007-046)	151	147	198	170	103	273	2,620
10	AERIE Project (PA2005-196)	-1	-3	-5	-4	-2	-6	-58
11	Meridian (Santa Barbara) Condominiums Project (PA2004-169)	59	71	131	70	45	116	499
12	Mariner's Pointe (PA2010-114)	12	7	19	35	38	74	850
13	San Joaquin Plaza Apartments (PA2012-020)	53	214	267	211	114	325	3,485
14	Koll Center Office Building (PA2007-046)	29	4	33	5	26	32	235
15	Uptown Hotel	70	45	115	83	79	162	2,111
16	Plaza Corona del Mar (PA2010-061)	3	3	5	3	3	6	54
17	D.I.S.C. 3501 Jamboree Rd and 301 Bayview Circle (PA2010-062)	31	15	47	15	31	46	681
	TOTAL	704	957	1,657	1,236	1,058	2,294	22,086

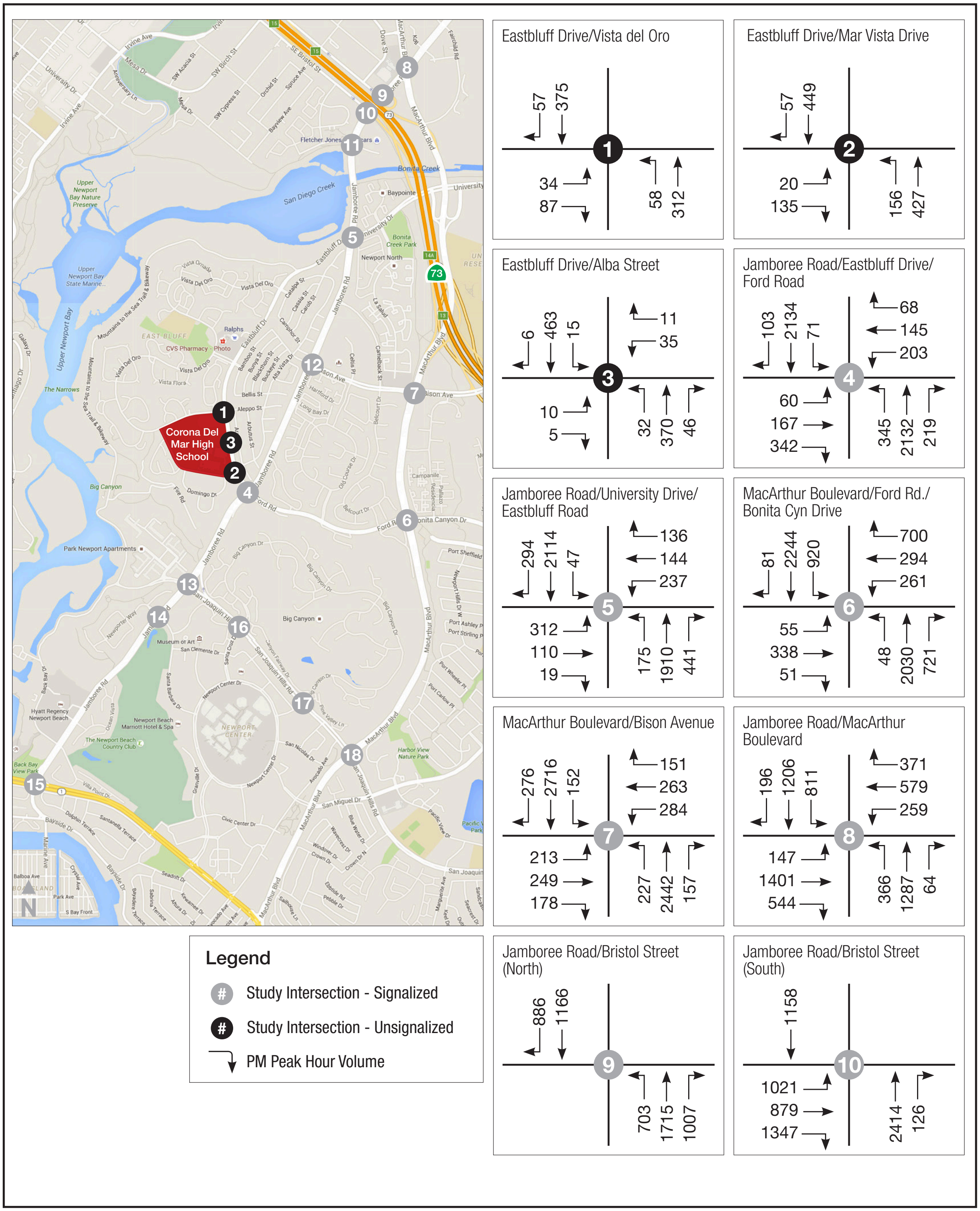
Note: Detailed trip generation calculations are provided in Appendix D of the Traffic Study (Appendix G1 of the DEIR).

Opening Year Traffic Volumes

The peak hour study intersection volumes for the Opening Year (2019), including existing traffic volumes, ambient traffic growth, and related project trips (the cumulative base traffic), are shown in Figures 5.9-3a and 5.9-3b, *Opening Year (2019) Traffic Volumes, PM Peak Hour.*

Figure 5.9-3a - Opening Year (2019) Traffic Volumes - PM Peak Hour

5. Environmental Analysis



Source: IBI Group, 2016

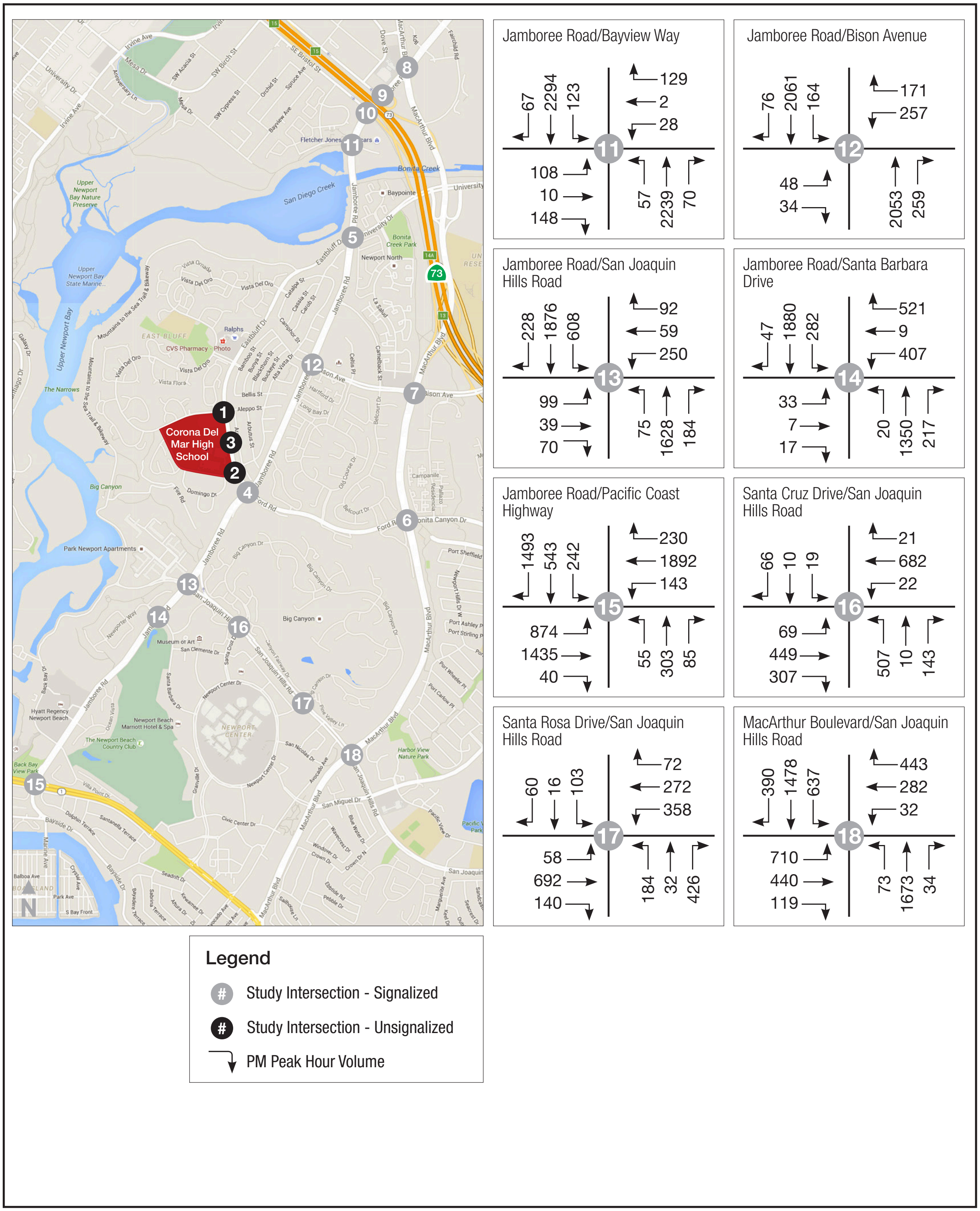
0 3,000
Scale (Feet)

5. Environmental Analysis
TRANSPORTATION AND TRAFFIC

This page intentionally left blank.

Figure 5.9-3b - Opening Year (2019) Traffic Volumes - PM Peak Hour

5. Environmental Analysis



0 3,000
Scale (Feet)

Source: IBI Group, 2016

5. Environmental Analysis
TRANSPORTATION AND TRAFFIC

This page intentionally left blank.

Opening Year Intersection LOS

A level of service analysis was conducted to evaluate Opening Year (2019) intersection operations during the weekday PM peak hour. Table 5.9-5, *Opening Year Intersection LOS, PM Peak Hour,* summarizes the levels of service at the study area intersections. All study area intersections are forecast to operate at acceptable LOS under Opening Year (2019) conditions with the exception of the following intersections:

- #5 Jamboree Road & University Drive/Eastbluff Drive: LOS E
- #6 MacArthur Boulevard & Ford Road/Bonita Canyon Drive: LOS F
- #8 Jamboree Road & MacArthur Boulevard: LOS E
- #14 Jamboree Road & Santa Barbara Drive: LOS E
- #15 Jamboree Road &Pacific Coast Highway: LOS E

Table 5.9-5 Opening Year Intersection LOS, PM Peak Hour

ID	Unsignalized Intersections	Traffic Control	PM Peak Hour Delay	PM Peak Hour LOS
1	Eastbluff Drive & Vista del Oro	AWSC	9.6	A
2	Eastbluff Drive & Mar Vista Drive	TWSC	12.4	B
3	Eastbluff Drive & Alba Street	TWSC	16.4	C
ID	**Signalized Intersections**	**Traffic Control**	**PM Peak Hour Delay**	**PM Peak Hour LOS**
4	Jamboree Road & Eastbluff Drive/Ford Road	Signal	0.837	D
5	Jamboree Road & University Drive /Eastbluff Drive	Signal	**0.921**	**E**
6	MacArthur Boulevard & Ford Road/Bonita Canyon Drive	Signal	**1.033**	**F**
7	MacArthur Boulevard & Bison Avenue	Signal	0.822	D
8	Jamboree Road & MacArthur Boulevard	Signal	**0.903**	**E**
9	Jamboree Road & Bristol Street (North)	Signal	0.577	A
10	Jamboree Road & Bristol Street (South)	Signal	0.858	D
11	Jamboree Road & Bayview Way	Signal	0.712	C
12	Jamboree Road & Bison Avenue	Signal	0.794	C
13	Jamboree Road & San Joaquin Hills Road	Signal	0.791	C
14	Jamboree Road & Santa Barbara Drive	Signal	**0.910**	**E**
15	Jamboree Road & Pacific Coast Highway	Signal	**0.910**	**E**
16	Santa Cruz Drive & San Joaquin Hills Road	Signal	0.615	B
17	Santa Rosa Drive & San Joaquin Hills Road	Signal	0.504	A
18	MacArthur Boulevard & San Joaquin Hills Road	Signal	0.697	B

TWSC = two-way stop control
AWSC = all-way stop control
Bold and Shaded = Unacceptable LOS

5.9.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project could:

T-1 Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

T-2 Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

T-3 Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

T-4 Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

T-5 Result in inadequate emergency access.

T-6 Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

T-7 Result in inadequate parking capacity. (Optional: this threshold was deleted from the 2010 CEQA Guidelines)

The Initial Study, included as Appendix A, substantiates that impacts associated with the following thresholds would be less than significant:

- Threshold T-3
- Threshold T-6

These impacts will not be addressed in the following analysis.

5.9.2.1 STANDARD OF SIGNIFICANCE

According to City of Newport Beach criteria, LOS D (ICU = 0.801 to 0.900) is the minimum acceptable condition that should be maintained during the morning (AM) and evening (PM) peak commute hours. Therefore, intersections operating at LOS E or F are considered deficient. To determine whether or not the addition of project-generated trips at a signalized intersection results in a significant impact, the City of Newport Beach has adopted the following thresholds of significance:

- The LOS at any study area intersection deteriorates from acceptable to unacceptable LOS (e.g., from LOS C to LOS E); or

- The ICU value to an intersection already operating at unsatisfactory LOS (below the target LOS of LOS D) increases by 0.010 or greater; or
- Through TPO analysis, a year after opening, the project both increases peak hour volumes to any primary intersection by more than 1 percent *and* creates a significant impact by one of the first two criteria.

For unsignalized intersections, the project would be considered to create a significant impact if:

- The LOS at any study area intersection deteriorates from acceptable to unacceptable LOS (e.g., from LOS C to LOS E); or
- The proposed project creates or adds traffic to an intersection already operating at unsatisfactory LOS (below the target LOS of LOS D).

Should a significant impact occur, project mitigation would be required to bring the intersection back to baseline conditions, at a minimum.

5.9.3 Environmental Impacts

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.9-1: Project-related trip generation would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system with the exception of one intersection at buildout. [Threshold T-1]

Impact Analysis: The District is planning to build the proposed Sports Field at roughly the same location of the current sports field (turf field and rubber track) on the CdM campus. Adjacent uses include residential to the west, north, and east and a church to the south. The proposed Sports Field would be designed to hold up to 1,000 bleacher seats.

Project Trip Generation

The sports field land use category is not listed in the Institute of Transportation Engineers (ITE) manual, *Trip Generation*, and there is limited local or national survey data available for this type of use. High school sports fields typically do not generate a significant number of vehicle trips during the peak hours of adjacent street traffic, but volumes may vary depending on the type of event and the scheduled start time. Vehicle trips generated by various sports team practices and activities that take place on the proposed Sports Field are already captured in the existing counts for day time. Sports field uses that would not attract large numbers of spectators are not expected to generate substantial additional trips.

High school sports events that attract large numbers of spectators tend to be seasonal, such as football games and graduation, and occasional community events. Varsity football games are typically scheduled for Thursday, Friday, or Saturday evenings between late August and early December. These trips have been

5. Environmental Analysis
TRANSPORTATION AND TRAFFIC

analyzed as new trips for worst-case scenario. Although additional trips would be generated during nighttime for practices, they would represent a fraction of the trips generated by varsity football games analyzed as the worst-case condition. Other minor events and practices relocated to CdM would generate substantially fewer trips than analyzed under the varsity football game scenario. These trips are currently occurring nearby Eastbluff Elementary School and Estancia High School.

The CdM HS football team generally plays home games at Estancia High School stadium at 2323 Placentia Avenue, Costa Mesa, approximately 8.3 driving miles from CdM MS/HS via SR-55 or 7.2 driving miles via Pacific Coast Highway. Stadiums at Newport Harbor High School and Orange Coast College are only used occasionally for larger games. If a sports field is constructed at CdM campus, people who would have traveled to Estancia to watch a CdM game would travel to CdM campus instead. Therefore, peak hour and daily trip estimates would not be new trips generated by a new use, but redistributed trips from Estancia to CdM campus. Many of these trips are already reflected in ambient traffic counts and Newport Beach Traffic Analysis Model forecast volumes. As a worst-case scenario, the peak hour trips are shown as new trips to be generated by the proposed Sports Field and distributed through the traffic study area network. The actual impacts caused of the proposed Sports Field are anticipated to be much more subtle and concentrated in the immediate vicinity of the school site.

PM Peak Hour Trips

In order to estimate the daily and peak hour trip generation for the proposed project, driveway counts were taken at the Estancia High School stadium during a CdM HS varsity football game. The driveway counts were conducted to identify the number of vehicles that enter and exit the Estancia High School during a typical varsity football game event. These counts are shown in Table 5.9-6, *PM Peak Hour Driveway County Volumes at Estancia Stadium*. However, there were a number of other school activities occurring at Estancia High School unrelated to the CdM HS football game when the counts were taken as further described in Impact 5.9-4. Because activities at Estancia High School unrelated to the sports field are presumed to account for a large percentage of the driveway trips, these trips were estimated as shown in Table 5.9-7, *Estancia High School PM Peak Hour Trip Generation Estimate*, and subtracted from the count volumes.

Table 5.9-6 PM Peak Hour Driveway Count Volumes at Estancia Stadium

Driveway Access Intersections	PM Peak Trips		
	Enter	**Exit**	**Total**
Estancia High School Stadium Driveway 1	124	84	208
Estancia High School Stadium Driveway 2	**53**	**30**	**83**
Total Peak Hour	**177**	**114**	**291**
Percentage	61%	39%	100%

Notes: Counts at access driveways to Estancia High School parking lots on Friday, October 30, 2015, between 5:00 PM and 7:00 PM. The football game started at 7:00 PM.

Table 5.9-7 Estancia High School PM Peak Hour Trip Generation Estimate

ITE Code	Land Use	Unit	Quantity	PM Peak Rates			PM Peak Trips		
				Enter	Exit	Total	Enter	Exit	Total
530	High School	Students	1,200	0.47	0.53	0.13	73	83	156
						Trip Reduction	**73**	**83**	**156**

As shown in Table 5.9-8, *Project Trip Generation Volume Calculation,* the trip generation for the proposed project was estimated by subtracting the ITE forecast PM peak hour Estancia High School trips (i.e., Table 5.9-7) from the actual driveway count volumes made at Estancia Stadium (i.e., Table 5.9-6), and determined that the CdM HS varsity football game at Estancia High School generated a total of 135 PM peak trips.

Table 5.9-8 Project Trip Generation Volume Calculation

Driveway Access Intersections	PM Peak Trips		
	Enter	Exit	Total
Estancia HS Stadium and Estancia High School Driveway Counts	177	114	291
Estancia High School Trip Generation Estimate	(73)	(83)	(156)
Stadium Derived Driveway Volumes	**104**	**31**	**135**
Percentage	77%	23%	100%

However, as a worst-case scenario, the forecast project-related trips for a sports field event where every bleacher seat is filled were added to the weekday PM peak hour volumes for each intersection in the level of service analysis. This is representative of a sold-out varsity football game on a Friday night. A ratio of 0.304 trip per seat was calculated by dividing the total sports field derived driveway volumes by total attendees at the October 30, 2015, varsity football game (i.e., 135 trips/444 attendees). Worst-case scenario project trips are calculated in Table 5.9-9, *Worst-Case Project Trip Generation*. It should be noted that evening peak hour trips are not expected on typical weekdays, since sports field use would be intermittent, and that varsity football games occur a limited number of times per year and during the period between late August and early December.

Table 5.9-9 Worst-Case Project Trip Generation

Land Use	Unit	Quantity	PM Peak Rates			PM Peak Trips		
			Enter	Exit	Total	Enter	Exit	Total
High School Sports Field	Seats	1,000	0.233	0.071	0.303	233	70	303

Average Daily Trips

Daily trip generation for a special-event land use like a high school sports field is highly variable and depends on a number of local factors, including demographics, weather patterns, team performance, and other site-specific criteria. Daily trip generation volumes at Estancia High School stadium were not distinguishable from other Estancia High School volumes, because the parking lots served both the sports field and other high school uses. As mentioned previously, a high school sports field is not one of the land use categories in the ITE manual, so two other sources were used to estimate the daily trip rate for the sports field: 1) the San

Diego Municipal Code: Land Development Code: Trip Generation Manual, and 2) the calculated trips per attendee for sports field (i.e., Table 5.9-9).

The City of San Diego Traffic and Engineering Division's recommended trip generation rate for a sports-facility land use is one trip per attendee. A spectator-sport facility is defined as a specially designed land use where people gather to watch a team sport or other attraction, such as the San Diego Qualcomm Stadium, the Sports Arena, or the Del Mar Race Track. This type of land use generally attracts more regional trips than a local high school football sports field and would be expected to have a higher daily trip generation rate. A value of 0.3 trip per attendee is calculated for the proposed project by dividing the total trips by the total estimated attendees for the date which the counts were taken (October 30, 2015).

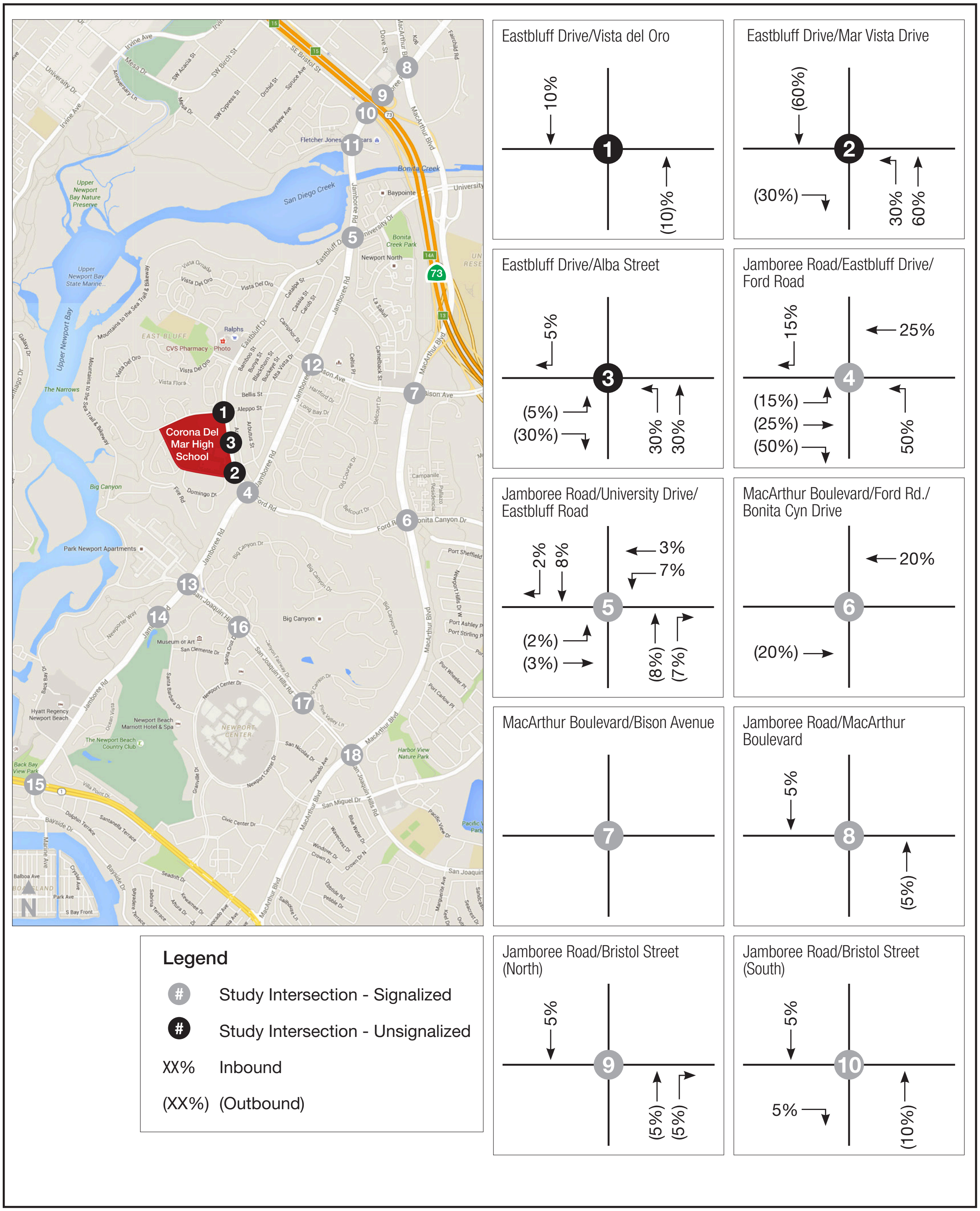
The daily trip generation rate of 0.65 trip per seat used for the proposed project is based on an average of the San Diego trip rate for a Sports Facility (one trip per attendee) and the calculated trips per attendee for the proposed Sports Field (0.3 trip per seat). This rate represents a conservative estimate for capacity events at the CdM campus.

The daily traffic volume for a spectator event at the proposed Sports Field is forecast to be 650 trips, which includes 325 inbound trips and 325 outbound trips throughout the day. The proposed Sports Field trips would not be generated on typical weekdays throughout the year. Total driveway trips of 650 are only expected on days when a varsity football game, graduation ceremony, or other special event fills the proposed Sports Field. Varsity football games are scheduled for Friday evenings between late August and early December, and graduation ceremonies occur in the month of June. These special events would not contribute to the typical daily traffic volumes year round.

Trip Distribution

According to the proposed site plan, the proposed Sports Field would use three different parking lots. Trips are distributed to the parking lots based on the shortest walking distance to the proposed Sports Field (visitors will try to park in the closest lot first), and most of the trips are assigned to the main parking lot closest to the proposed Sports Field. Local trip distribution is based on the district map of the area from which the high school draws students. Regional trips are estimated according to the surrounding populated areas from which visiting teams would arrive. The inbound and outbound trip distribution percentages are shown in Figures 5.9-4a and 5.9-4b, *Project Trips Distribution*.

Figure 5.9-4a - Project Trips Distribution

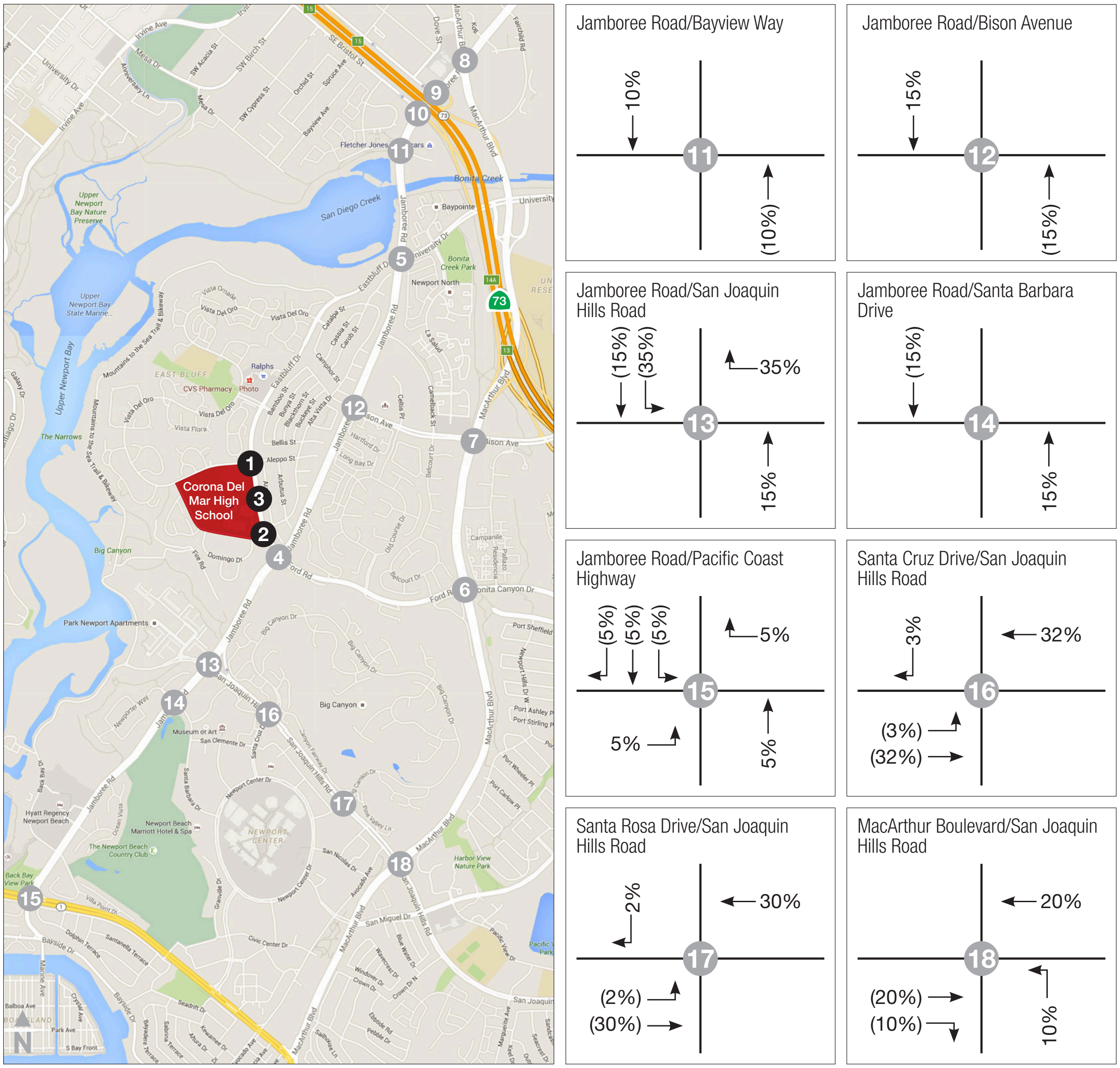


0 3,000
Scale (Feet)

Source: IBI Group, 2016

This page intentionally left blank.

Figure 5.9-4b - Project Trips Distribution



Legend

#	Study Intersection - Signalized
#	Study Intersection - Unsignalized
XX%	Inbound
(XX%)	(Outbound)

0 3,000
Scale (Feet)

Source: IBI Group, 2016

This page intentionally left blank.

Existing (2015) Conditions With Project

Existing (2015) intersection volumes with project are shown in Figures 5.9-5a and 5.9-5b, *Existing With Project Traffic Volumes, PM Peak*. A summary of the LOS analysis results for the Existing (2015) With Project conditions is in Table 5.9-10, *Existing Intersection LOS With Project, PM Peak Hour*. As shown, the #6 intersection, MacArthur & Ford Road/Bonita Canyon Drive would operate at unacceptable LOS E without and with the project. However, the proposed project would not increase the ICU value by 0.010; therefore, it would not exceed the significance threshold and no impact would occur.

Table 5.9-10 Existing Intersection LOS With Project, PM Peak Hour

ID	Unsignalized Intersection	Traffic Control	Without Project		With Project		Change	Significant?
			Delay (sec)	LOS	Delay (sec)	LOS		
1	Eastbluff Dr./Vista del Oro	AWSC	9.5	A	9.6	A	0.1	No
2	Eastbluff Dr./Mar Vista Dr.	TWSC	12.1	B	13.5	B	1.4	No
3	Eastbluff Dr./Alba St.	TWSC	15.8	C	22.5	C	10.1	No
ID	**Signalized Intersection**	**Traffic Control**	**Without Project**		**With Project**		**Change**	**Significant?**
			ICU	**LOS**	**ICU**	**LOS**		
4	Jamboree Rd./Eastbluff Dr./Ford Rd.	Signal	0.777	C	0.831	D	0.054	No
5	Jamboree Rd./University Dr./Eastbluff Rd.	Signal	0.860	D	0.870	D	0.010	No
6	MacArthur Blvd./Ford Rd./Bonita Cyn Dr.	Signal	**0.982**	**E**	**0.986**	**E**	0.004	No
7	MacArthur Blvd./Bison Ave.	Signal	0.780	C	0.780	C	0.000	No
8	Jamboree Rd./MacArthur Blvd.	Signal	0.830	D	0.831	D	0.001	No
9	Jamboree Rd./Bristol St. (North)	Signal	0.527	A	0.527	A	0.000	No
10	Jamboree Rd./Bristol St. (South)	Signal	0.796	C	0.801	D	0.005	No
11	Jamboree Rd./Bayview Way	Signal	0.670	B	0.672	B	0.002	No
12	Jamboree Rd./Bison Ave.	Signal	0.734	C	0.736	C	0.002	No
13	Jamboree Rd./San Joaquin Hills Rd.	Signal	0.724	C	0.765	C	0.041	No
14	Jamboree Rd./Santa Barbara Dr.	Signal	0.846	D	0.848	D	0.002	No
15	Jamboree Rd./Pacific Coast Highway	Signal	0.827	D	0.836	D	0.009	No
16	Santa Cruz Dr./San Joaquin Hills Rd.	Signal	0.583	A	0.612	B	0.029	No
17	Santa Rosa Dr./San Joaquin Hills Rd.	Signal	0.471	A	0.475	A	0.004	No
18	MacArthur Blvd./San Joaquin Hills Rd.	Signal	0.657	B	0.672	B	0.015	No

TWSC = two-way stop control; AWSC = all-way stop control
Bold and Shaded– unacceptable LOS

Opening Year (2019) Condition With Project

Opening Year (2019) forecast intersection volumes with project are shown in Figures 5.9-6a and 5.9-6b, *Opening (2019) With Project Traffic Volumes, PM Peak Hour*. A summary of the LOS analysis results for the Opening Year (2019) With Project condition is in Table 5.9-11, *Opening Year Intersection LOS With Project, PM Peak Hour*. As shown, five intersections would operate at unacceptable LOS E or worse, but the ICU value would increase by 0.010 at only one intersection, which would therefore exceed the significance threshold, and a significant impact would occur. Intersection #5, Jamboree Road & University Drive/Eastbluff Road, is considered significantly impacted by implementation of the proposed project and would require mitigation.

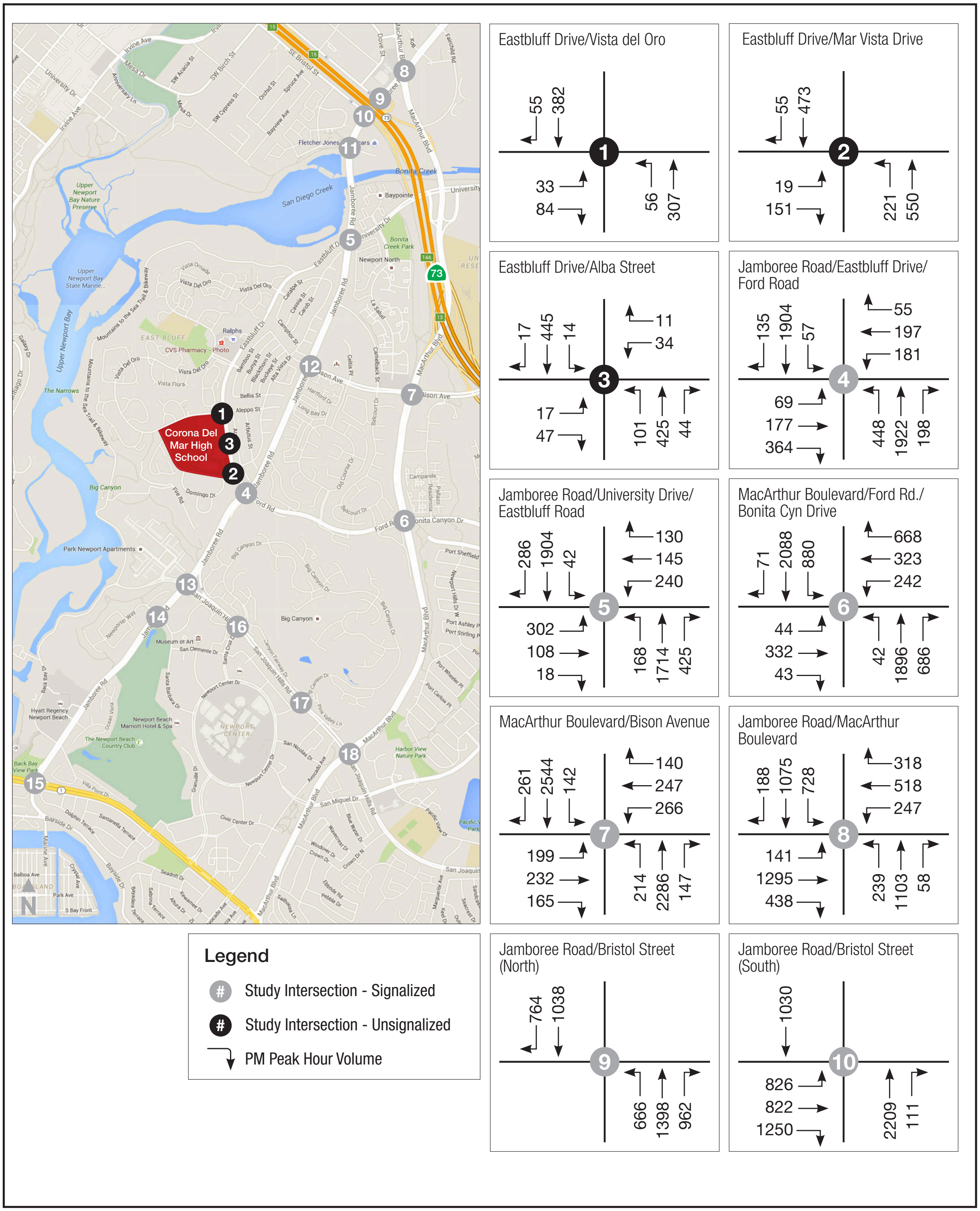
5. Environmental Analysis
TRANSPORTATION AND TRAFFIC

Table 5.9-11 Opening Year Intersection LOS With Project PM Peak Hour

ID	Unsignalized Intersection	Traffic Control	Without Project		With Project		Delta	Significant?
			Delay (sec)	LOS	Delay (sec)	LOS		
1	Eastbluff Dr./Vista del Oro	AWSC	9.6	A	9.8	A	0.2	No
2	Eastbluff Dr./Mar Vista Dr.	TWSC	12.4	B	14.6	B	2.2	No
3	Eastbluff Dr./Alba St.	TWSC	16.4	C	23.8	C	7.4	No
ID	**Signalized Intersection**	**Traffic Control**	**Without Project**		**With Project**		**Delta**	**Significant?**
			ICU	**LOS**	**ICU**	**LOS**		
4	Jamboree Rd & Eastbluff Dr./Ford Rd.	Signal	0.837	D	0.891	D	0.054	No
5	Jamboree Rd & University Dr./Eastbluff Rd.	Signal	**0.921**	**E**	**0.931**	**E**	0.010	**Yes**
6	MacArthur Blvd & Ford Rd./Bonita Cyn Dr.	Signal	**1.033**	**F**	**1.038**	**F**	0.005	No
7	MacArthur Blvd./Bison Ave.	Signal	0.822	D	0.822	D	0.001	No
8	Jamboree Rd./MacArthur Blvd.	Signal	**0.903**	**E**	**0.904**	**E**	0.001	No
9	Jamboree Rd./Bristol St. (North)	Signal	0.577	A	0.577	A	0.000	No
10	Jamboree Rd./Bristol St. (South)	Signal	0.858	D	0.863	D	0.005	No
11	Jamboree Rd./Bayview Way	Signal	0.712	C	0.713	C	0.001	No
12	Jamboree Rd./Bison Ave.	Signal	0.794	C	0.797	C	0.003	No
13	Jamboree Rd./San Joaquin Hills Rd.	Signal	0.791	C	0.844	D	0.053	No
14	Jamboree Rd./Santa Barbara Dr.	Signal	**0.910**	**E**	**0.913**	**E**	0.003	No
15	Jamboree Rd./Pacific Coast Highway	Signal	**0.910**	**E**	**0.919**	**E**	0.009	No
16	Santa Cruz Dr./San Joaquin Hills Rd.	Signal	0.615	B	0.645	B	0.030	No
17	Santa Rosa Dr./San Joaquin Hills Rd.	Signal	0.504	A	0.508	A	0.004	No
18	MacArthur Blvd./San Joaquin Hills Rd.	Signal	0.697	B	0.711	C	0.014	No

TWSC = two-way stop control
AWSC = all-way stop control
Bold and Shaded = Unacceptable LOS

Figure 5.9-5a - Existing With Project Traffic Volumes - PM Peak Hour



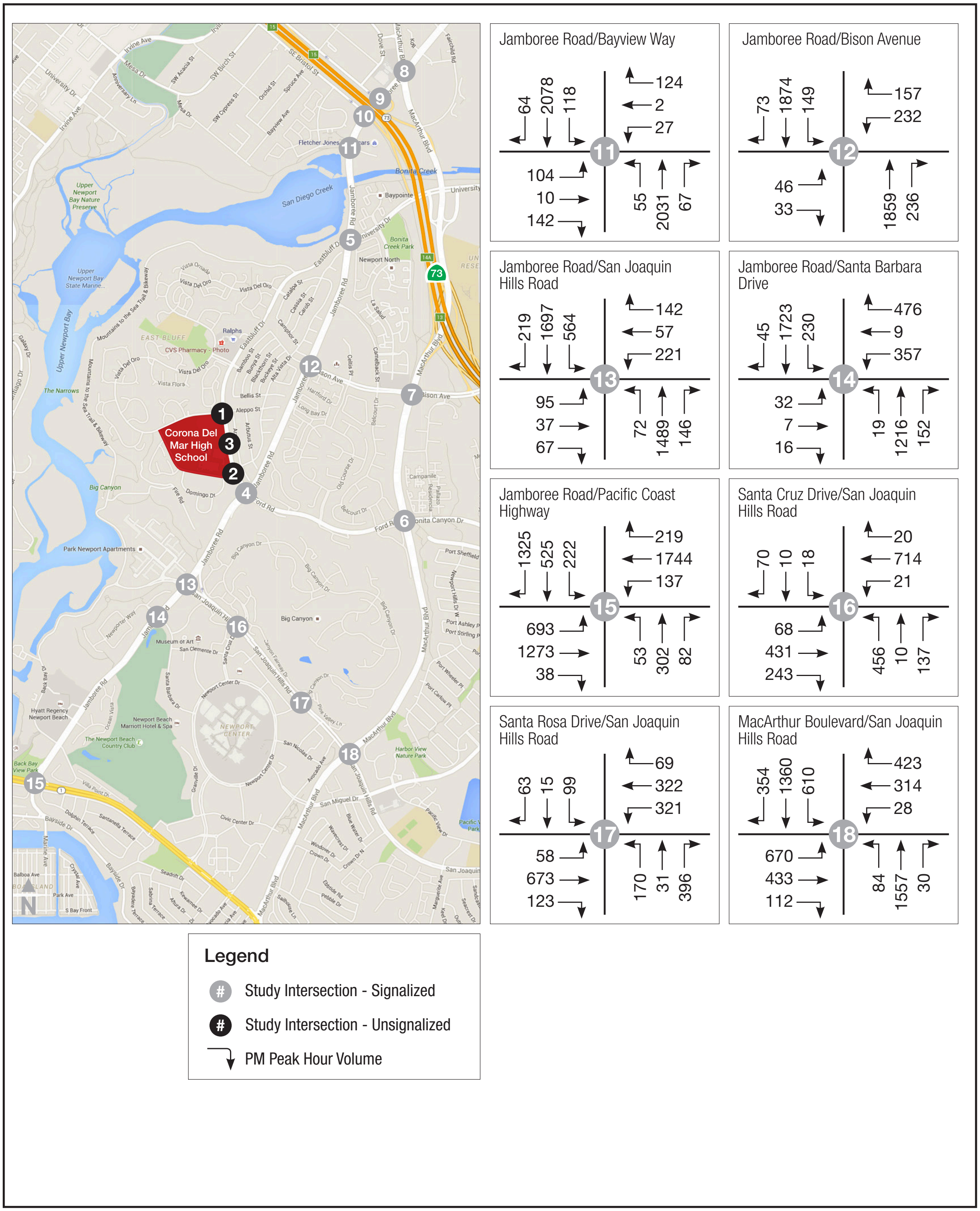
0 3,000
Scale (Feet)

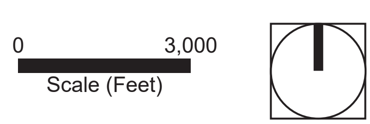
Source: IBI Group, 2016

This page intentionally left blank.

Figure 5.9-5b - Existing With Project Traffic Volumes - PM Peak Hour

5. Environmental Analysis





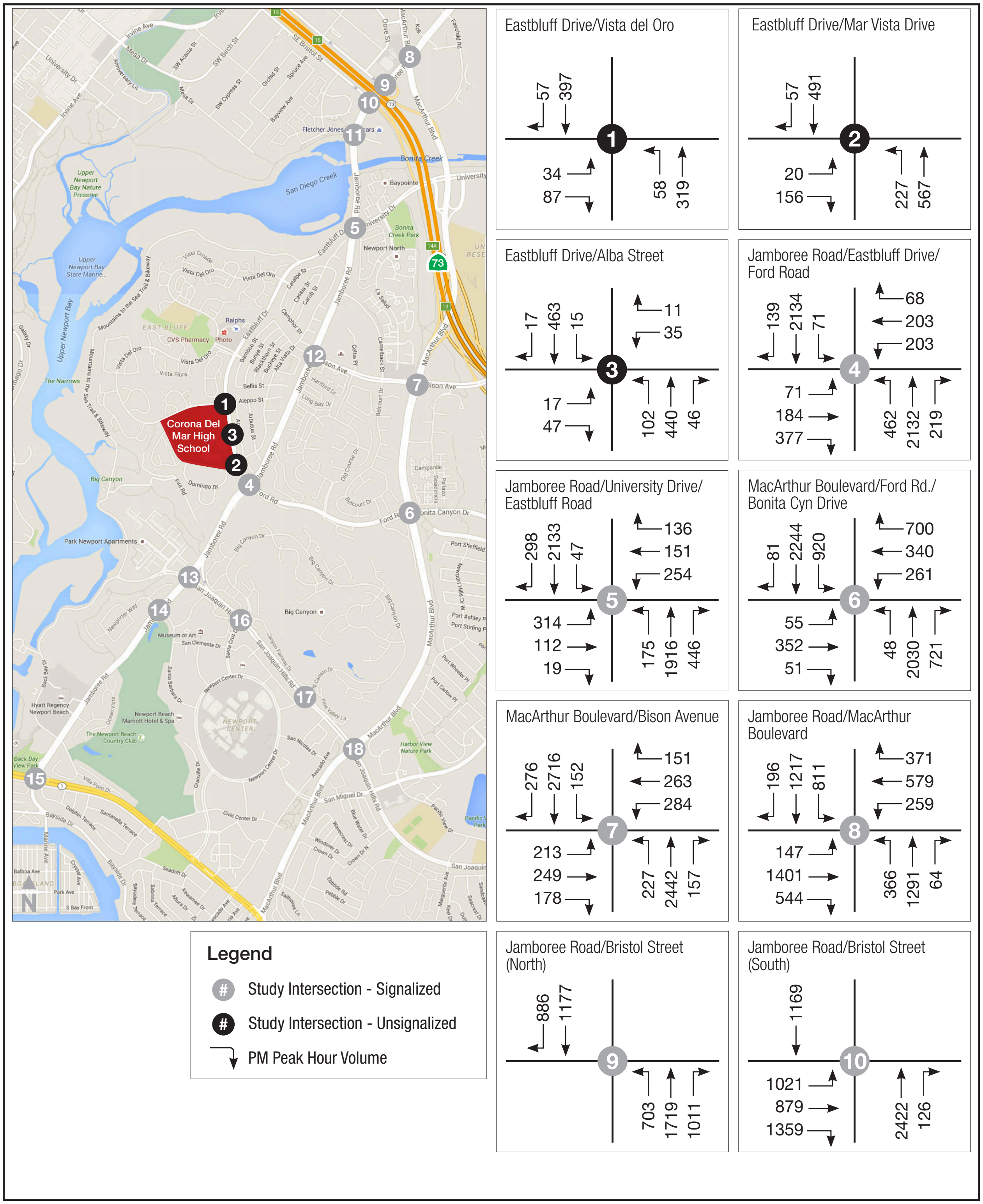
Source: IBI Group, 2016

5. Environmental Analysis
TRANSPORTATION AND TRAFFIC

This page intentionally left blank.

Figure 5.9-6a - Opening (2019) With Project Traffic Volumes - PM Peak Hour

5. Environmental Analysis



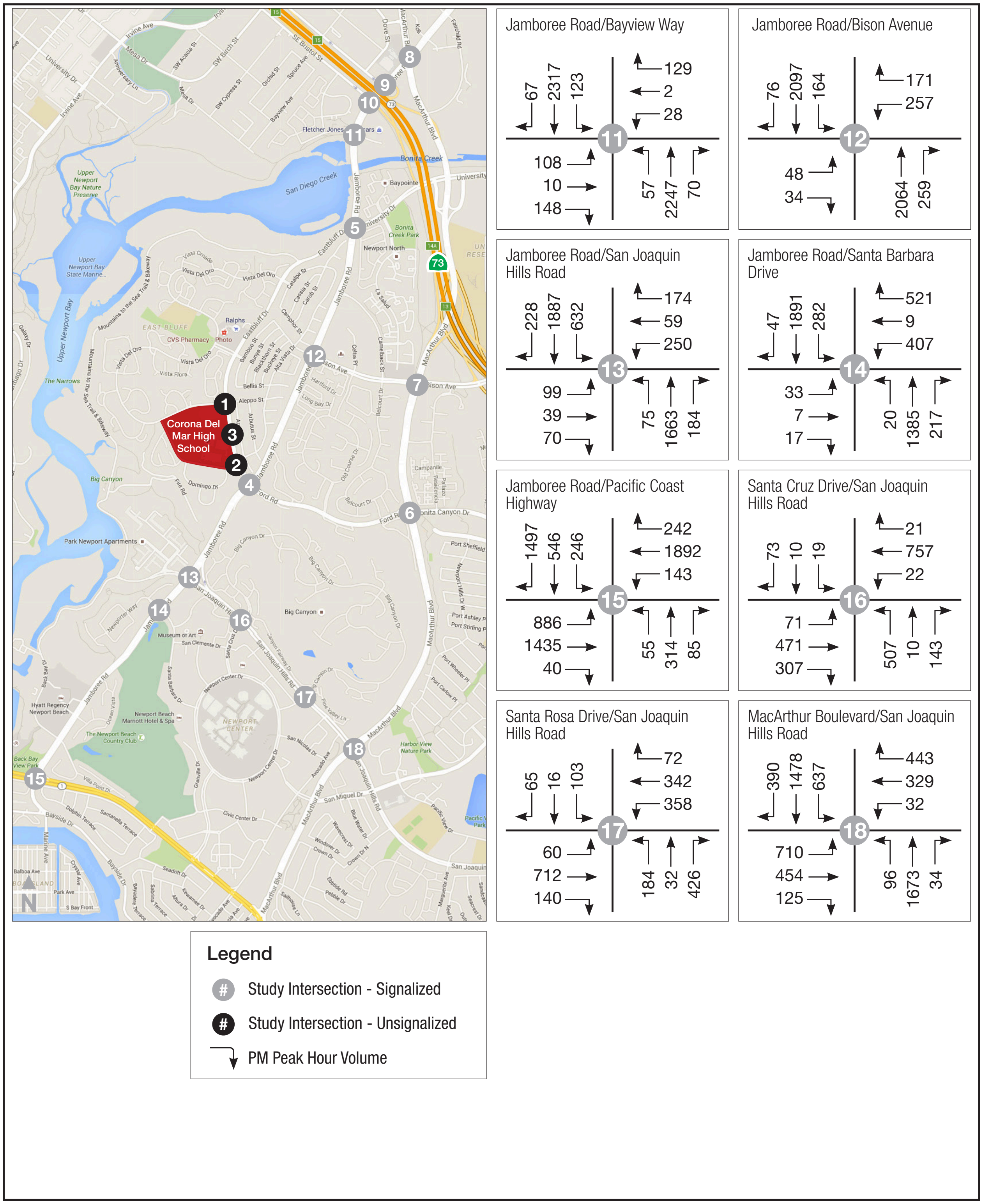
0 3,000
Scale (Feet)

Source: IBI Group, 2016

5. Environmental Analysis
TRANSPORTATION AND TRAFFIC

This page intentionally left blank.

Figure 5.9-6b - Opening (2019) With Project Traffic Volumes - PM Peak Hour



0 3,000
Scale (Feet)

Source: IBI Group, 2016

This page intentionally left blank.

Traffic Phasing Ordinance Analysis

1 Percent Methodology

As shown in Table 5.9-12, *TPO Analysis, 1 Percent Methodology*, the project trips for each leg of the primary intersections were compared with 1 percent of the peak hour volumes one year after project completion, which was year 2020—i.e., 1 percent of the existing + growth (Year 2020) + cumulative projects traffic peak hour approach volumes. The 1 percent threshold was exceeded in 11 of the 15 intersections evaluated:

- #4 Jamboree Road and Eastbluff Drive/Ford Road
- #5 Jamboree Road and University Drive/Eastbluff Road
- #6 MacArthur Boulevard and Ford Road/Bonita Canyon Drive
- #10 Jamboree Road and Bristol Street (South)
- #12 Jamboree Road and Bison Avenue
- #13 Jamboree Road and San Joaquin Hills Road
- #14 Jamboree Road and Santa Barbara Drive
- #15 Jamboree Road and Pacific Coast Highway
- #16 Santa Cruz Drive and San Joaquin Hills Road
- #17 Santa Rosa Drive and San Joaquin Hills Road
- #18 MacArthur Boulevard and San Joaquin Hills Road

Table 5.9-12 TPO Analysis – One Percent Methodology

ID	Intersection	Condition	North	South	East	West
4	Jamboree Rd./Eastbluff Dr./Ford Rd.	1% of projected peak hour volume	27	22	6	4
		Project peak hour volume	117	36	63	58
		Project traffic more than 1%?	**Yes**	**Yes**	**Yes**	**Yes**
5	Jamboree Rd./University Dr./Eastbluff Rd.	1% of projected peak hour volume	25	24	4	5
		Project peak hour volume	11	23	4	24
		Project traffic more than 1%?	No	No	**Yes**	**Yes**
6	MacArthur Blvd./Ford Rd./Bonita Cyn Dr.	1% of projected peak hour volume	28	32	4	13
		Project peak hour volume	0	0	14	46
		Project traffic more than 1%?	No	No	**Yes**	**Yes**
7	MacArthur Blvd./Bison Ave.	1% of projected peak hour volume	28	31	6	7
		Project peak hour volume	0	0	0	0
		Project traffic more than 1%?	No	No	No	No
8	Jamboree Rd./MacArthur Blvd.	1% of projected peak hour volume	17	21	20	12
		Project peak hour volume	4	11	0	0
		Project traffic more than 1%?	No	No	No	No
9	Jamboree Rd./Bristol St. (North)	1% of projected peak hour volume	34	19	0	0
		Project peak hour volume	8	11	0	0
		Project traffic more than 1%?	No	No	No	No
10	Jamboree Rd./Bristol St. (South)	1% of projected peak hour volume	25	11	32	0

5. Environmental Analysis
TRANSPORTATION AND TRAFFIC

Table 5.9-12 TPO Analysis – One Percent Methodology

ID	Intersection	Condition	North	South	East	West
		Project peak hour volume	8	11	12	0
		Project traffic more than 1%?	No	**Yes**	No	No
11	Jamboree Rd./Bayview Way	1% of projected peak hour volume	24	24	3	2
		Project peak hour volume	8	23	0	0
		Project traffic more than 1%?	No	No	No	No
12	Jamboree Rd./Bison Ave.	1% of projected peak hour volume	23	22	1	4
		Project peak hour volume	11	36	0	0
		Project traffic more than 1%?	No	**Yes**	No	No
13	Jamboree Rd./San Joaquin Hills Rd.	1% of projected peak hour volume	19	26	2	4
		Project peak hour volume	35	35	0	82
		Project traffic more than 1%?	**Yes**	**Yes**	No	**Yes**
14	Jamboree Rd./Santa Barbara Dr.	1% of projected peak hour volume	15	22	1	9
		Project peak hour volume	35	11	0	0
		Project traffic more than 1%?	**Yes**	No	No	No
15	Jamboree Rd./Pacific Coast Highway	1% of projected peak hour volume	4	22	23	23
		Project peak hour volume	11	11	12	12
		Project traffic more than 1%?	**Yes**	No	No	No
16	Santa Cruz Dr./San Joaquin Hills Rd.	1% of projected peak hour volume	6	1	8	7
		Project peak hour volume	0	7	24	75
		Project traffic more than 1%?	No	**Yes**	**Yes**	**Yes**
17	Santa Rosa Dr./San Joaquin Hills Rd.	1% of projected peak hour volume	6	2	9	7
		Project peak hour volume	0	5	22	70
		Project traffic more than 1%?	No	**Yes**	**Yes**	**Ys**
18	MacArthur Blvd./San Joaquin Hills Rd.	1% of projected peak hour volume	18	25	13	8
		Project peak hour volume	23	0	20	47
		Project traffic more than 1%?	**Yes**	No	**Yes**	**Yes**

Intersection Capacity Utilization

For all study area intersections that exceeded the 1 percent threshold, an ICU analysis was conducted to evaluate whether or not the intersection would be significantly impacted by implementation of the project under Year 2020 conditions. A summary of the LOS analysis results for the TPO Year (2020) with project conditions is in Table 5.9-13, *TPO Year 2020 Intersection LOS With Project, PM Peak Hour*. As shown, all study intersections are forecast to operate at acceptable LOS under the TPO Year (2020) with the exception of intersection #5, Jamboree Road at University Drive/Eastbluff Drive. However, with mitigation, these intersections would operate better than at pre-project conditions. Therefore, TPO traffic analysis impacts would be less than significant.

Table 5.9-13 TPO Year 2020 Intersection LOS With Project, PM Peak Hour

ID	Signalized Intersection	Traffic Control	Without Project		With Project		Delta	Significant?
			ICU	LOS	ICU	LOS		
4	Jamboree Rd./Eastbluff Dr./Ford Rd.	Signal	0.843	D	0.897	D	0.054	No
5	Jamboree Rd./University Dr./Eastbluff Rd.	Signal	**0.928**	**E**	**0.938**	**E**	0.010	**Yes**
	With Mitigation		**--**	**--**	***0.924***	***E***	*0.004*	*No*
6	MacArthur Blvd./Ford Rd./Bonita Cyn Dr.	Signal	**1.042**	**F**	**1.046**	**F**	0.005	No
10	Jamboree Rd./Bristol St. (South)	Signal	0.853	D	0.857	D	0.004	No
12	Jamboree Rd./Bison Ave.	Signal	0.789	C	0.791	C	0.002	No
13	Jamboree Rd./San Joaquin Hills Rd.	Signal	0.779	C	0.825	D	0.046	No
14	Jamboree Rd./Santa Barbara Dr.	Signal	0.917	E	**0.919**	**E**	0.002	No
15	Jamboree Rd./Pacific Coast Highway	Signal	0.917	D	**0.925**	**E**	0.008	No
16	Santa Cruz Dr./San Joaquin Hills Rd.	Signal	0.620	B	0.649	B	0.029	No
17	Santa Rosa Dr./San Joaquin Hills Rd.	Signal	0.509	A	0.513	A	0.004	No
18	MacArthur Blvd./San Joaquin Hills Rd.	Signal	0.703	B	0.718	C	0.015	No

TWSC = two-way stop control
AWSC = all-way stop control
Bold and Shaded– unacceptable LOS

Impact 5.9-2: The proposed project would not conflict with the Orange County Congestion Management Program. [Threshold T-2]

Impact Analysis: The Orange County CMP monitors the level of service at all designated CMP intersections in the county. One CMP intersection and three arterial roadways are in the traffic study area for the proposed project. According to the 2013 Orange County CMP, a traffic impact analysis is required for CMP purposes for all proposed developments generating 2,400 or more daily trips. The proposed project is anticipated to generate 650 daily trips, and thus no action is required for CMP purposes. The proposed project would not conflict with the Orange County CMP and impacts would be less than significant.

Impact 5.9-3: The proposed project would not substantially increase hazards due to a design feature or inadequate emergency access. [Threshold T-4]

Impact Analysis: Vehicular access to the project site would be provided via five existing unsignalized driveways. Parking Lot 1, just south of the proposed Sports Field, has two access driveways on Eastbluff Drive with the northern driveway being an entrance only. Parking Lot 2, at the intersection of Eastbluff Drive and Mar Vista Drive, has an entrance and exit access driveway on Mar Vista Drive. Parking Lot 3, at the southwestern end of the CdM campus, has two access driveways on Mar Vista Drive. The following describes each of the site accesses:

- **Site Access 1** is the northern entrance driveway for Parking Lot 1 on Eastbluff Drive. The access driveway is entrance only with two lanes. The intersection is modeled as a two-way stop control, with no stop signs on Eastbluff Drive. Vehicles entering the site from northbound Eastbluff Drive would be able to turn left into Site Access 1 via an existing left turn lane. Vehicles entering the site from southbound

5. Environmental Analysis
TRANSPORTATION AND TRAFFIC

Eastbluff Drive would be able to turn right into Site Access 1 via the through or right lane. No vehicles would be able to exit onto Eastbluff Drive from this driveway.

- **Site Access 2** is the southern driveway for Parking Lot 1 on Eastbluff Drive and is an extension of Alba Street. The intersection is a two-way stop control, with the stop signs on Alba Street and Site Access 2. Vehicles entering the site from northbound Eastbluff Drive would be able to turn left into Site Access 2 via an existing left turn lane. Vehicles entering the site from southbound Eastbluff Drive would be able to turn right into Site Access 2 via the through or right lane. Vehicles exiting Site Access 2 would be able to turn left or right onto Eastbluff Drive.

- **Site Access 3** is the driveway for Parking Lot 2 on Mar Vista Drive, and is an extension of Domingo Drive. The intersection is a two-way stop control, with the stop signs on Domingo Drive and Site Access 3. Vehicles entering or exiting the site from Mar Vista Drive would be able to turn into Site Access 3 via the one traffic lane in each direction. Vehicles exiting Site Access 3 would be able to turn left or right onto Mar Vista Drive. Although a physical stop sign is not present, vehicles exiting the driveway must stop and wait for gaps in traffic on Mar Vista Drive.

- **Site Accesses 4 and 5** are the driveways for Parking Lot 3 on Mar Vista Drive, respectively located at the southern and northern end of the parking lot. Both intersections are two-way stop control, with the stop signs on Site Accesses 4 and 5. Vehicles entering or exiting the site from Mar Vista Drive would be able to turn into Site Accesses 4 or 5 via the one traffic lane in each direction. Vehicles exiting Site Accesses 4 or 5 would be able to turn left or right onto Mar Vista Drive. Although a physical stop sign is not present, vehicles exiting the driveway must stop and wait for gaps in traffic on Mar Vista Drive.

An LOS analysis was performed for the site accesses, with the exception of Site Access 2, which was evaluated as intersection #3 in the traffic study area intersection analysis. The trip distribution for Eastbluff Drive/Site Access 1 is estimated by the counts taken at the directly perpendicular intersections of Eastbluff Drive/Vista Del Oro and Eastbluff Drive/Alba Street. The trip distributions for Site Accesses 3, 4, and 5 are estimated using a ratio of number parking spaces in each lot, from the largest parking lot to the respective parking lots. The trip distributions for Parking Lot 3 are evenly split between Site Accesses 4 and 5. Table 5.9-14 summarizes the existing LOS and future LOS at the study area intersections. As shown, all site accesses would operate at LOS B or better with and without project conditions, and no significant impact would occur.

Table 5.9-14 Existing and Opening Year Site Access Intersection LOS

ID	Unsignalized Intersection	Traffic Control	Without Project		With Project		Delta	Significant?
			Delay	LOS	Delay	LOS		
Existing (2015)								
S1	Eastbluff Dr./Site Access 1	TWSC	8.3	A	8.6	A	0.3	No
S3	Site Access 3/Mar Vista Dr.	TWSC	11.8	B	12.8	B	1.0	No
S4	Mar Vista Dr./Site Access 4	TWSC	9.3	A	9.6	A	0.3	No
S5	Mar Vista Dr./Site Access 5	TWSC	9.0	A	9.1	A	0.1	No
Opening Year (2019)								
S1	Eastbluff Dr./Site Access 1	TWSC	8.4	A	8.7	A	0.3	No
S3	Site Access 3/Mar Vista Dr.	TWSC	12.0	B	13.0	B	1.0	No
S4	Mar Vista Dr./Site Access 4	TWSC	9.3	A	9.6	A	0.3	No
S5	Mar Vista Dr./Site Access 5	TWSC	9.1	A	9.2	A	0.1	No

TWSC = two-way stop control

Traffic Management Plan

The District has prepared an event traffic management plan (TMP) for large events in order to identify strategies and procedures to help reduce traffic impacts (see Appendix G2). However, it should be noted that implementation of this TMP is currently not warranted as there are adequate parking and site access capacities to accommodate the proposed project during at-capacity event. Therefore, although its implementation is not necessary, it demonstrates the means to further reduce project impact if the needs arise and the District's commitment in responding to community's concern over lack of parking and traffic congestion. The TMP provides strategies for the following three situations:

- **Pre-event.** Strategies and procedures intended to help guide traffic into the site prior to the event taking place.

- **Pre-event (Alternative Parking Location).** Identification of an alternative parking location for larger events or special events that are concurrent with other activities at the school site, and recommendations for additional traffic management procedures and devices that would be required to direct traffic to this alternative location.

- **Post-event.** Strategies and procedures to assist attendee egress/departure from the event.

Figure 5.9-7, *TMP, Pre-event Traffic Control with Available Onsite Parking*, shows strategies for pre-event situations when there is available onsite parking. As shown, certain driveways would be closed in order to better manage the flow of traffic, and traffic signs, cones, and traffic control staff would be provided.

Once the available onsite parking lots become full, all driveways would be closed to entering traffic with the exception of Site Access 1 on the north lot for the shuttle. Additional parking would be provided at Eastbluff Elementary School, and appropriate signs would be provided to guide the traffic flow, as shown in Figure 5.9-8, *TMP, Pre-event Traffic Control with Alternative Parking Location*. A shuttle service would be provided, as shown in Figure 5.9-9, *Shuttle Service Route*.

Figure 5.9-10, *TMP, Post-event Egress Traffic Management Strategies*, shows the egress recommendations to better manage the traffic. All three parking lots would have one entrance and one exit with a parking attendant at each lot, and traffic would be directed toward Eastbluff Drive and Jamboree Road.

During a maximum attendance event, adequate on-campus parking capacity would be provided as further discussed in Impact 5.9-4. The project site has streets fronts on all sides and would not obstruct movement of emergency vehicles. The minimum fire access road width required by the California Fire Code is 20 feet and the City of Newport Beach requires minimum width of the street for public fire access to be 36 feet with parking allowed on both sides (Newport Beach 2016). Mar Vista Drive and Vista Del Oro are local streets that are approximately 40 feet wide, providing adequate width for an emergency vehicle to pass through even with street parking on both sides of the streets. The proposed project would not result in inadequate emergency access and impacts would be less than significant.

Impact 5.9-4: The project implementation would not result in inadequate parking capacity impact. [Threshold T-6]

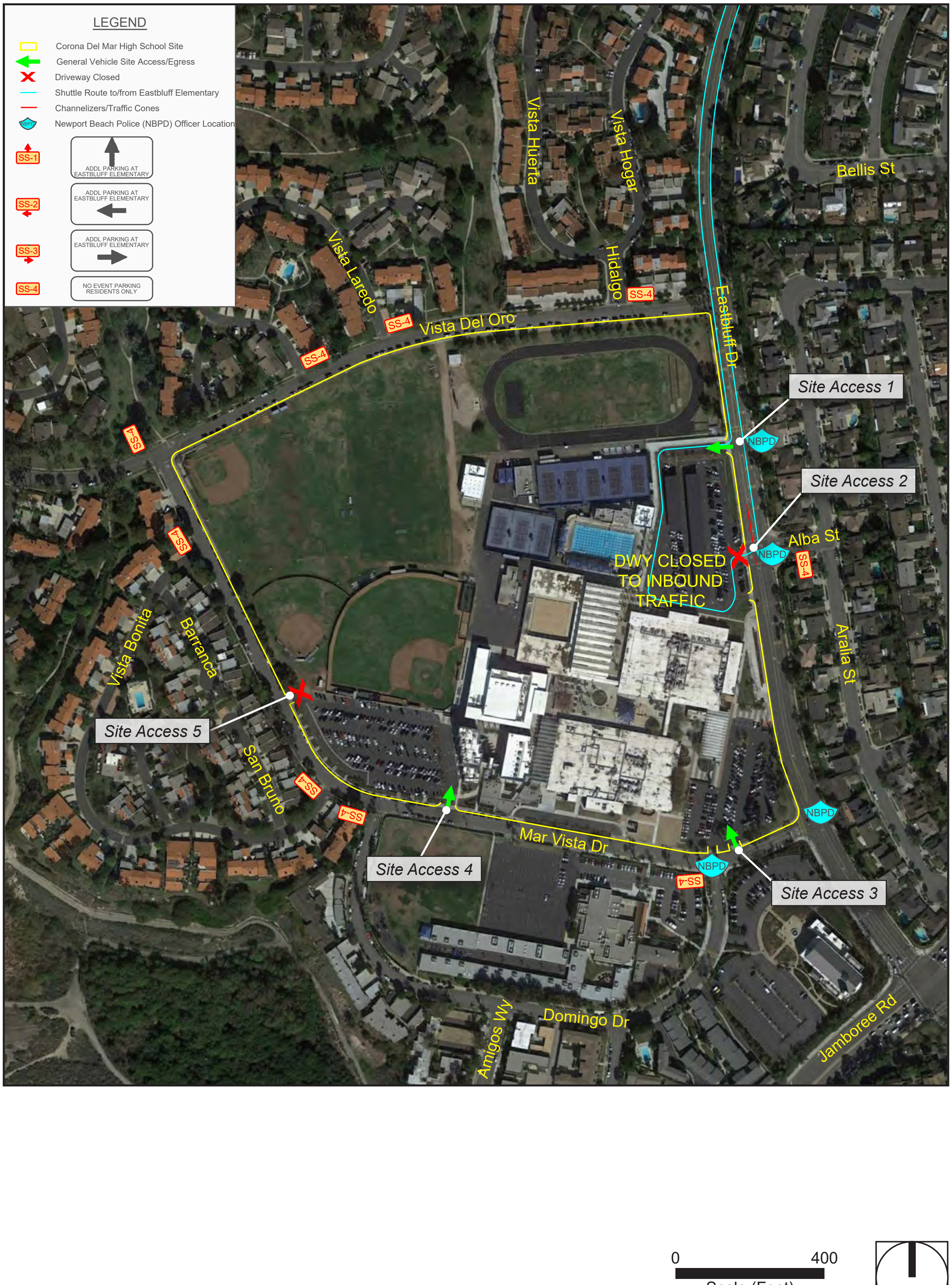
Impact Analysis:

The ITE's *Parking Generation* (3rd edition) does not include parking rates for a high school sports field land use. In the absence of national statistical parking rates, parking demand for the proposed Sports Field was estimated using occupancy count data from surveys made at the Estancia High School stadium in Costa Mesa. The parking supply for the Estancia High School stadium consists of four parking lots with a total of 724 spaces, and are all accessed from Placentia Avenue. Parking Lot 1 is at the northern end of Estancia High School, closest to the stadium, and contains 141 parking spaces. Parking Lot 2 is directly south of Parking Lot 1 and contains 24 parking spaces. Parking Lot 3 is at the southern end of Estancia High School and contains 299 parking spaces. Parking Lot 4 is directly west of Parking Lot 3 and contains 260 parking spaces. (The total number of parking spaces for Parking Lot 4 is estimated because it is not a designated parking lot, but some cars were parked in unmarked areas or on the blacktop.) A parking occupancy count was taken at the Estancia High School stadium during a CdM HS varsity football game on Friday, October 30, 2015. The game was scheduled to start at 7:00 PM. Occupied stalls were counted at 7:00 PM, 8:00 PM, and 9:00 PM to determine the peak parking demand for a typical sports field event. The count data are summarized in Table 5.9-15.

Table 5.9-15 Parking Occupancy Counts at Estancia High School

Parking Lot	Lot Capacity	Occupied Parking Spaces		
		7:00 PM	8:00 PM	9:00 PM
Parking Lot 1	141	135	133	99
Parking Lot 2	24	24	20	8
Parking Lot 3	299	26	25	16
Parking Lot 4	260	169	192	174
Total	**724**	**354**	**370**	**297**
Percent Occupied		48.9%	51.1%	41.0%
Parking Demand Ratio: 370 occupied stalls / 444 attendees = 0.833				

Figure 5.9-7 - TMP - Pre-Event Traffic Control With Available Onsite Parking



Source: IBI Group, 2016

5. Environmental Analysis
TRANSPORTATION AND TRAFFIC

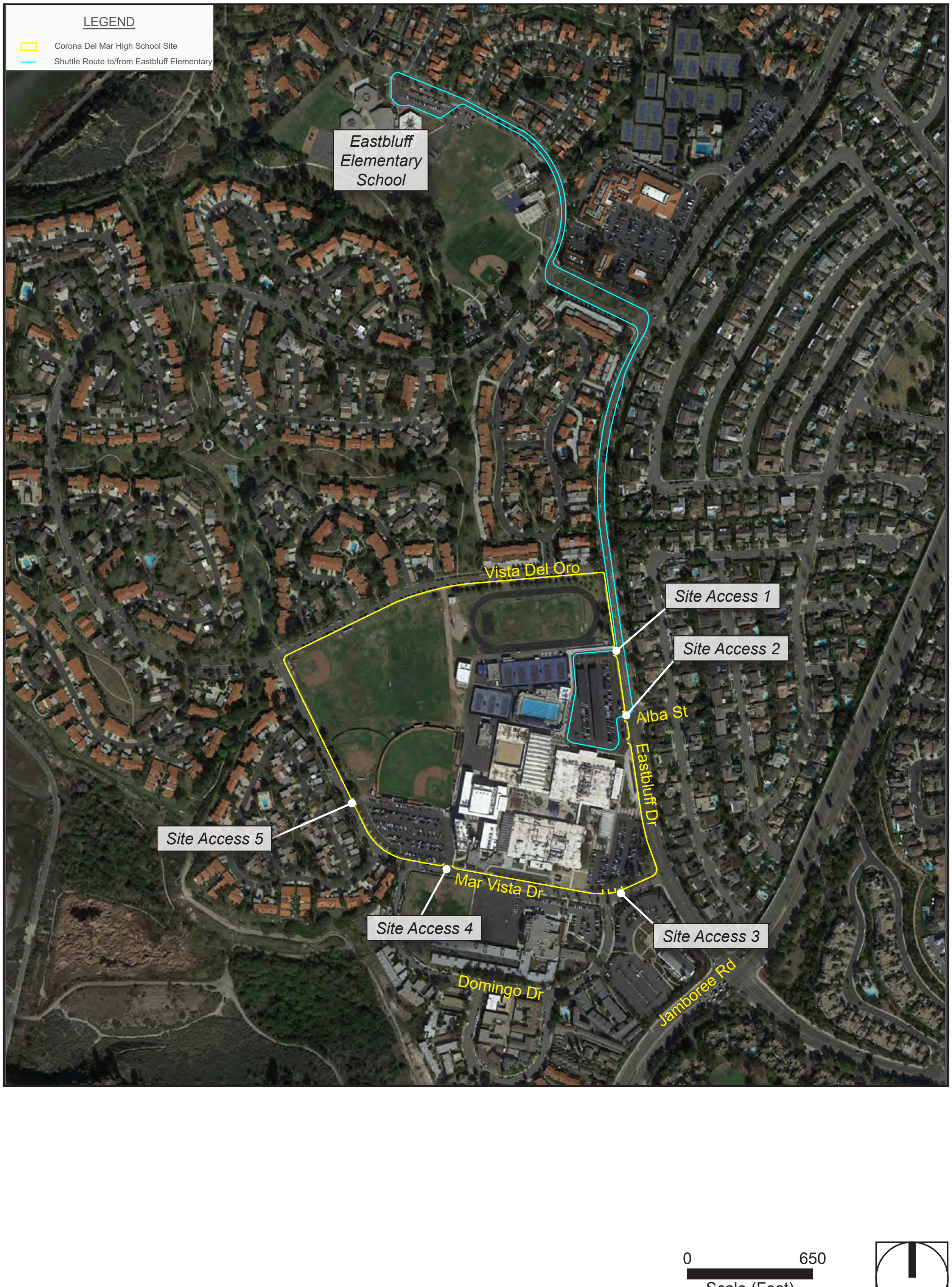
This page intentionally left blank.

Figure 5.9-8 - TMP - Pre-Event Traffic Control With Alternate Parking Location

Source: IBI Group, 2016

This page intentionally left blank.

Figure 5.9-9 - Shuttle Service Route



Source: IBI Group, 2016

This page intentionally left blank.

Figure 5.9-10 - TMP - Post-Event Egress Traffic Management Strategies

Source: IBI Group, 2016

This page intentionally left blank.

Parking Demands

As shown in Table 5.9-15, *Parking Occupancy Counts at Estancia High School*, a parking demand forecast of 0.8333 spaces per attendee was calculated based on counts taken at a CdM HS varsity football game conducted at Estancia High School. However, this ratio overstates the parking demand for a varsity football game since other activities were occurring on the Estancia High School concurrently with the football game. According to the activities schedule for Estancia High School on October 30, 2015, the following events must also be considered to establish a reasonable parking ratio.

- 1:30–9:00 PM: Girls volleyball practice and games with expected attendance of 80.
- 2:00–10:00 PM: Best Buddies Halloween Dance for SPED with expected attendance of 150.
- 3:00–10:00 PM: Drama rehearsals with expected attendance of 40.
- 4:00–9:00 PM: Basketball practice and games with expected attendance of 100.
- 5:00–8:30 PM: City of Costa Mesa Pop Warner with expected attendance of 100.

Therefore, in order to calculate a reasonable parking ratio for the proposed project, different parking requirements and demands relevant to the proposed project were considered. The City of Newport Beach Municipal Code Section 20.40.040 requires one parking space per three seats for assembly/meeting facilities (0.33 space per seat), while no specific parking demand for stadium seating is provided. The City of Santa Ana Municipal Code requires one parking space per four seats for stadiums (0.25 space per seat) (§ 41-1373). Rates from four previous high school stadium studies were 0.2 space per seat for Costa Mesa High School, 0.23 space per seat for Irvine High School, 0.24 space per seat for Estancia High School, and 0.333 space per seat for El Toro High School. Therefore, for the proposed project, a conservative rate of 0.367 space per seat was used by averaging the calculated 0.833 space per attendee with the four other rates studied for a high stadium use. The assumed rate of 0.367 exceeds the City of Newport Beach's parking requirement for assembly/meeting facilities and the City of Santa Ana's stadium parking requirement.

Therefore, if an event at the proposed Sports Field results in full occupancy of the 1,000 seats, the anticipated parking demand would be 367 spaces. However, it should be noted that typical attendance for varsity football games at the proposed Sports Field would be substantially less. Attendance information for varsity football games for the 2013-14, 2014-15 and 2015-16 seasons indicated that typical attendance ranged from a low of 230 attendees to a high of 649 attendees, with a majority of the games ranging between 300 and 550 attendees. These attendance numbers do not include Battle of Bay or CIF games, which are played at Orange Coast College and would continue to be played at other larger facilities. Based on the historic attendance data, parking demand forecast of 85 to 238 spaces is anticipated for typical varsity football games that would be played at CdM HS.

Parking Supply

The existing CdM campus currently provides 592 onsite parking spaces: Parking Lot 1 (North) has 232 parking spaces (7 ADA and 225 Standard), Parking Lot 2 (South) has 140 parking spaces (5 ADA and 135 Standard), and Parking Lot 3 (Southwestern) has 220 parking spaces (7 ADA and 213 Standard). See Figure 5.9-11, *On-Site and Overflow Parking*.

5. Environmental Analysis
TRANSPORTATION AND TRAFFIC

Occupied stalls were counted at 7:00 PM, 8:00 PM, and 9:00 PM on March 4, 2016, to determine the peak parking demand for a typical Friday evening, as shown in Table 5.9-16. A peak total of 61 on-campus parking spaces were occupied. Maximum parking occupancy during a fully occupied sports field event with regular after-school activity is expected to be 428 spaces—the sum of the maximum sports field parking forecast (367 spaces) and peak after-school-activity parking (61 spaces). Therefore, with 592 onsite parking spaces available on CdM campus, the projected maximum occupied parking spaces of 428 could be accommodated with excess of 164 unoccupied spaces. Therefore, the proposed project is expected to have negligible impacts during after-school activity.

Table 5.9-16 Parking Occupancy Counts at CdM MS/HS[1]

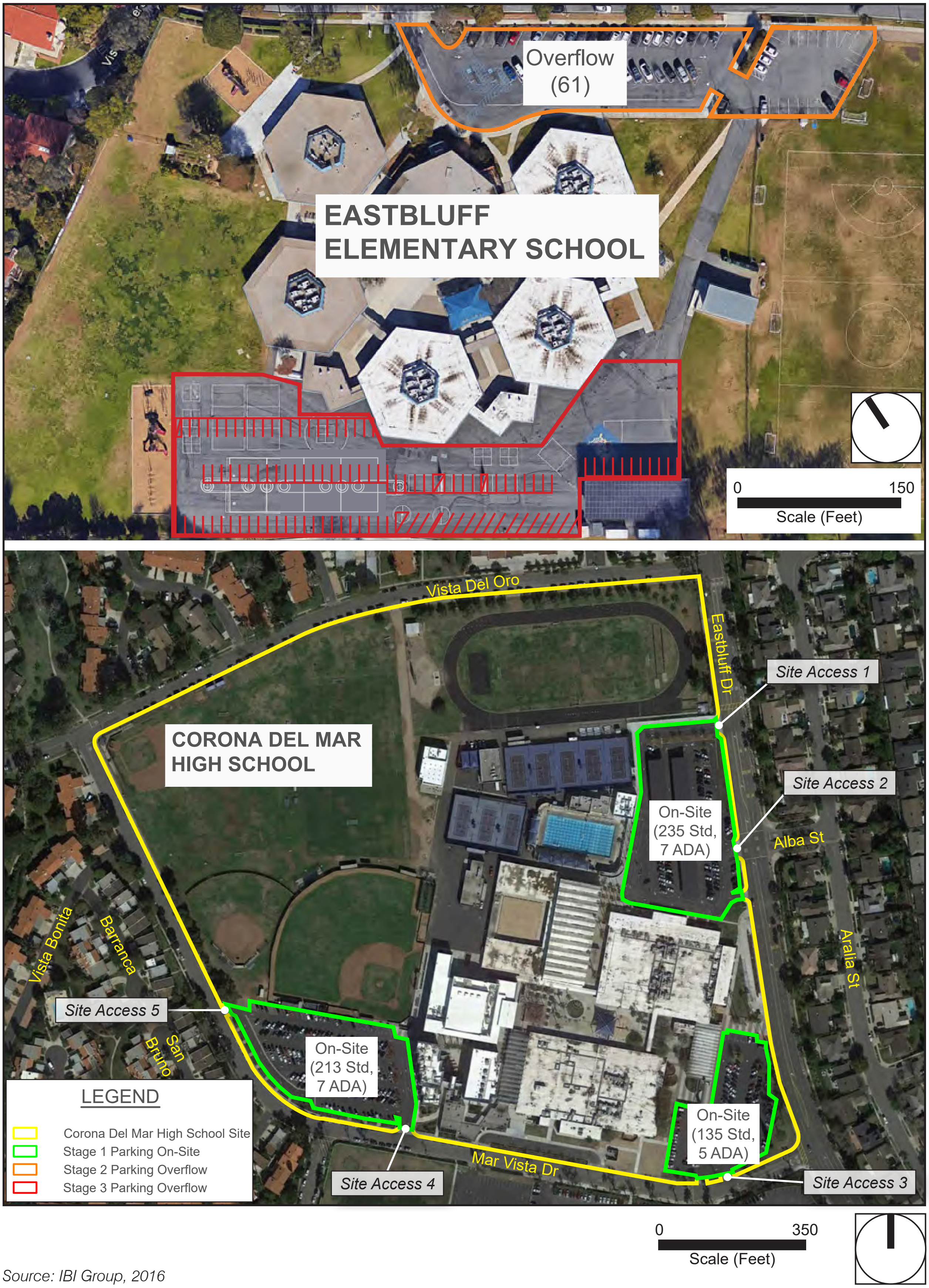
Parking Areas	Occupied Spaces	Type	6:00 PM	7:00 PM	8:00 PM
Street Parking	246	Estimated/unassigned	37	36	39
Parking Lot 1	232	Including 7 disabled	20	22	11
Parking Lot 2	140	Including 6 disabled	9	3	2
Parking Lot 3	220	Including 7 disabled	32	6	6
On-campus Only	592	On-campus parked only	61	31	19
	838	Total Vehicles Parked	98	67	58
	100%	Percent Occupied	11.69%	8%	7.04%

[1] The parking counts were taken on Friday, March 4, 2016, at 7:00 PM, 8:00 PM, and 9:00 PM.

Typical school activities occur between 8:00 AM to 3:00 PM and the proposed project would allow activities to occur outside of this time period. According to ITE's *Parking Generation (4th Edition)*, the maximum expected parking generation for a high school use is 793 spaces during the peak period (9:00 AM to 11:00 AM). This figure is calculated by multiplying the school enrollment of 2,557 students by the conservative rate of 0.31 vehicle per student from the range of values (0.14–0.31), which comes from ITE's parking generation for high school land use. This is a conservative estimate because 828 of the 2,557 students are middle school students and middle school's parking demand values are lower than high schools (0.07 to 0.11).

During the PM peak period, typical after-school activities would generate less parking demand than the AM peak period because there is no class in session for the 2,557 students. The after-school peak parking demand is found to be 61 spaces. The total after-school peak period parking demand, combining school activities and the project-related activities, is expected to be 428 spaces, which is less than what currently occurs on a typical day. Since the project proposes to build a new sports field where trips would occur outside the typical school period, potential impacts associated with the project were only analyzed during the PM peak hour, when the impacts would be most severe. The CdM campus has adequate parking capacity for full-capacity events, and parking impacts would be less than significant.

Figure 5.9-11 - TMP - On-Site and Overflow Parking



Source: IBI Group, 2016

5. Environmental Analysis
TRANSPORTATION AND TRAFFIC

This page intentionally left blank.

5.9.4 Cumulative Impacts

The cumulative projects list is shown in Table 5.9-4 and shown in Figure 4-9, *Cumulative Project Locations*. Cumulative project impacts were analyzed under the 2019 conditions when the proposed project was combined with other future developments to evaluate the overall traffic impacts. A significant cumulative impact is identified when a facility is projected to operate below the LOS standards and exceeds the established threshold due to cumulative future traffic and project-related traffic. The project's incremental effect to congested intersections would result in one intersection that operates at a level below the LOS standards and exceeds the established significance threshold.

5.9.5 Existing Regulations and Standard Conditions

There are no existing regulations or standard conditions that are applicable to the proposed project.

5.9.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impacts would be less than significant: 5.9-2, 5.9-3, and 5.9-4.

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

- **Impact 5.9-1** The proposed project would cause one intersection to exceed the applicable significance threshold. Although some intersections would operate at unacceptable LOS, those intersections would also operate at unacceptable LOS without the project, and the project-related increase would not be significant.

5.9.7 Mitigation Measures

Impact 5.9-1

TRAN-1 Newport-Mesa Unified School District shall coordinate with the City of Newport Beach to implement a minor signal timing change to increase cycle time by 10 seconds at the Jamboree Boulevard and University Drive/Eastbluff Drive intersection.

5.9.8 Level of Significance After Mitigation

Impact 5.9-1

The proposed project was found to impact the Jamboree Road and University Drive/Eastbluff Drive intersection under Opening Year (2019) conditions. However, as shown in Table 5.9-17, implementation of Mitigation Measure TRAN-1 would improve the LOS to acceptable level by reducing the ICU from 0.921 to 0.917, thereby improving the LOS from pre-project condition. Therefore, no significant impact would occur.

5. Environmental Analysis
TRANSPORTATION AND TRAFFIC

Table 5.9-17 Impacted Intersection LOS With Mitigation

ID	Signalized Intersection	Traffic Control	Without Project		With Project	
			ICU	LOS	ICU	LOS
5	Jamboree Rd./University Dr./Eastbluff Dr.	Signal	**0.921**	**E**	**0.931**	**E**
	With Mitigation	Signal	-	-	**0.917**	**E**

Bold and Shaded = Unacceptable LOS

Under the TPO analysis, the Jamboree Road and University Drive/Eastbluff Drive intersection was also found to result in potentially significant impact. However, implementation of Mitigation Measures TRAN-1 would improve the LOS to its pre-project levels; therefore, the impact is considered less than significant.

Implementation of TRAN-1 would reduce potential transportation and traffic impacts to a level that is less than significant. No significant unavoidable adverse impacts would occur.

5.9.9 References

IBI Group. 2016, March 23. Corona del Mar High School Sports Field Project Traffic Study.

______. 2016, November 4. Corona del Mar High School Sports Field: Event Traffic Management Plan.

Institute of Transportation Engineers (ITE). 2010. Parking Generation, 4th edition.

______. ITE Trip Generation Manual. 9th edition.

Newport Beach, City of. 2016, July 12 (revised). City of Newport Beach, Community Development Department, Life Safety Services, Guidelines and Standards, Guideline C.01 - Emergency Fire Access: Roadways, Fire Lanes, Gates and Barriers. http://newportbeachca.gov/home/showdocument?id=18653

Orange County Transportation Authority (OCTA). 2015, November. 2015 Orange County Congestion Management Program. http://www.octa.net/pdf/Final%202015%20CMP.pdf

Transportation Research Board. 2010. Highway Capacity Manual.

5.10 ENERGY

5.10.1 Environmental Setting

5.10.1.1 REGULATORY BACKGROUND

State

California Energy Commission

The CEC was created in 1974 as the state's principal energy planning organization in order to meet the energy challenges facing the state in response to the 1973 oil embargo. The CEC is charged with six basic responsibilities when designing state energy policy:

- Forecast statewide electricity needs.
- License power plants to meet those needs.
- Promote energy conservation and efficiency measures.
- Develop renewable energy resources and alternative energy technologies.
- Promote research, development and demonstration.
- Plan for and direct the state's response to energy emergencies.

Title 24, California Code of Regulations, Part 6: Energy Efficiency Standards for Buildings

Title 24 was first established in 1978 in response to a legislative mandate to reduce California's energy consumption. Since that time, Title 24 has been updated periodically to allow for consideration and possible incorporation of new energy-efficiency technologies and methods.

All new construction in California is subject to the energy conservation standards in Title 24, Part 6, Article 2 of the California Administrative Code. These are prescriptive standards that establish maximum energy consumption levels for the heating and cooling of new buildings. The use of alternative energy applications in development projects, while encouraged, is not required as a development condition. Such applications may include installation of photovoltaic solar panels, active solar water heating systems, or integrated pool deck water heating systems, all of which serve to displace consumption of conventional energy sources. Incentives are primarily state and federal tax credits, as well as reduced energy bills.

Title 20, California Code of Regulations, Sections 1601 et seq.: Appliance Efficiency Regulations

The 2012 Appliance Efficiency Regulations took effect on February 13, 2013. The regulations include standards for both federally and nonfederally regulated appliances.

Electric Utility Industry Restructuring Act: Assembly Bill 1890 (1996)

The California Public Utilities Commission regulates investor-owned electric power and natural gas utility companies in the State of California. AB 1890, enacted in 1996, deregulated the power generation industry, allowing customers to purchase electricity on the open market. Under deregulation, the production and distribution of power that were under the control of investor-owned utilities (e.g., Southern California Edison) were decoupled.

5.10.1.2 EXISTING CONDITIONS

Electricity

Southern California Edison (SCE) is the primary distribution provider of electricity to Newport Beach and much of southern and central California. SCE serves 180 cities over 50,000 square miles of service area, providing power to over 13 million people and over 300,000 businesses. The CdM campus is currently connected to the SCE power grid.

Natural Gas

The Southern California Gas Company (SoCalGas) provides natural gas services to all of Newport Beach. The CdM campus is currently connected to and served by SoCalGas.

5.10.2 Thresholds of Significance

Section 21100(b)(3) of California Environmental Quality Act (CEQA) requires that EIRs include a discussion of the potential energy impacts of Proposed Projects, with particular emphasis on avoiding or reducing any inefficient, wasteful, and unnecessary consumption of energy. Although energy is not a topical section in Appendix G of the CEQA Guidelines, Appendix F of the CEQA Guidelines states that the goal of conserving energy implies the wise and efficient use of energy and that the means of achieving this goal include 1) decreasing overall per capita energy consumption; 2) decreasing reliance on fossil fuels such as coal, natural gas and oil; and 3) increasing reliance on renewable energy sources. Appendix F states that potential environmental impacts considered in the EIR concerning energy may include the following:

- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials maybe discussed.
- The effects of the project on local and regional energy supplies and on requirements for additional capacity.
- The effects of the project on peak and base period demands for electricity and other forms of energy.
- The degree to which the project complies with existing energy standards.
- The effects of the project on energy resources.

Therefore, the following thresholds are also addressed in the impact analysis: a project would normally have a significant effect on the environment if the project:

EN-1 Would increase demand for energy that requires expanded supplies or the construction of new infrastructure or expansion of existing facilities, the construction of which could cause significant environmental effects.

EN-2 Would result in an inefficient, wasteful and unnecessary consumption of energy.

5.10.3 Environmental Impacts

The applicable thresholds are identified in brackets after the impact statement.

Impact 5.10-1: The proposed project would increase the demand for electrical services but would not require new or expanded electrical infrastructure for the provider or result in wasteful electrical energy consumption. [Thresholds EN-1 and EN-2]

Impact Analysis: The proposed project would require approximately 205,000 kilowatt hours (kWh) per year of electricity, approximately 187,000 kWh for the nighttime lighting system and 18,000 kWh per year for the 3,000-square-foot restroom/ticket booth/concession building. The increased demand is expected to be adequately served by the existing SCE electrical facilities on the project site currently serving the CdM campus. SCE forecasts that it would have adequate electricity to meet the expected growth in its service area through 2022. Using SCE's anticipated consumption in 2022 in a high-demand consumption scenario, electricity demand is expected to be 116,637 gigawatt hours (GWh) (CEC 2012). The increase in electricity demand from the proposed project would be a negligible percentage (less than 0.0002 percent) of overall demand in SCE's service area. Therefore, projected electrical demand would not significantly impact SCE's level of service. The ancillary building would also be required adhere to the provisions of CALGreen, which establishes 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. Therefore, no significant impact to electricity systems is anticipated. SCE is the primary electricity supply company for much of Southern California, and SCE has the capacity to provide electricity demands projected for the proposed project. Considering the size of the SCE service area and its supply capacity, the total estimated electricity consumption for the proposed project would not require SCE to obtain new or expanded electricity supplies. Impacts would be less than significant.

Impact 5.10-2: The proposed project would not increase the demand for natural gas services to require new or expanded natural gas capacity for the provider or result in wasteful natural gas energy consumption. [Thresholds EN-1 and EN-2]

Impact Analysis: The proposed project would generate a demand for 35,700 kBTU (thousand British thermal units) per year for the restroom/ticket booth/concession building. No natural gas demand is anticipated for the lighting system. Total supplies of natural gas available to SoCalGas are expected to remain stable at 3.875 billion cubic feet per day, that is, 1,414,375 billion BTU per year, between 2015 and 2035 (CGEU 2014). Total natural gas consumption in SoCalGas's service area is forecast to be 2.647 billion cubic feet per day (966,155 billion BTU per year) in 2035. Therefore, the natural gas demand from the proposed project would represent a negligible percentage of overall demand in SoCalGas's service area. Impacts to natural gas services would be less than significant.

Impact 5.10-3: The proposed project would not result in increased demand for transportation energy, would not require new or expanded transportation energy capacity for the provider, and would not result in wasteful transportation energy consumption. [Thresholds EN-1 and EN-2]

Impact Analysis: Transportation energy use depends on the type and number of trips, vehicle miles traveled, fuel efficiency of vehicles, and travel mode. The proposed project would reduce VMT by allowing CdM students to remain on campus for games and practices rather than traveling distance to other facilities (i.e., Eastbluff Elementary School, Estancia High School, Newport Harbor High School, Orange Coast Community College).

Therefore, the proposed project would result in overall reduction in VMT and consume less transportation energy. Therefore, no new or expanded transportation energy capacity is necessary, and the proposed project would not result in wasteful transportation energy consumption. Impacts would not be significant.

5.10.4 Cumulative Impacts

The areas considered for cumulative impacts are the SCE and SoCalGas service areas for electricity and natural gas, respectively. Cumulative development projects listed in Table 4-1 would result in net increases in development intensity within the City. However, future projects would be required to achieve more rigorous energy efficiency standards than existing developments in Newport Beach. Although the proposed project and other cumulative projects would result in increased demands for electrical and gas service, the impacts would not be individually considerable; therefore, they would not be cumulatively significant. The proposed project would result in decreased VMT, and therefore would not contribute cumulatively to the increased transportation energy use. Other cumulative projects are required to comply with various federal and state government legislations to improve energy efficiency in buildings, equipment, and appliances and reduce vehicle miles traveled. Utility companies are required to increase their renewable energy sources to meet the state mandate of 50 percent renewable supplies by 2030. Cumulative impacts to energy resources would be less than significant.

5.10.5 Existing Regulations

- California Green Building Standards Code (24 CCR Part 11)
- California Appliance Efficiency Regulations (20 CCR, Sections 1601 through 1608)

5.10.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impacts would be less than significant: 5.10-1, 5.10-2, and 5.10-3.

5.10.7 Mitigation Measures

No mitigation measures are required.

5.10.8 Level of Significance After Mitigation

The existing applicable regulations would reduce potential impacts associated with energy to a level that is less than significant. Therefore, no significant unavoidable adverse impacts relating to energy use remain.

5.10.9 References

California Energy Commission (CEC). 2012, June. California Energy Demand 2012-2022 Final Forecast. Volume 2: Electricity Demand by Utility Planning Area. http://www.energy.ca.gov/2012publications/CEC-200-2012-001/CEC-200-2012-001-CMF-V2.pdf.

California Gas and Electric Utilities (CGEU). 2014. 2014 California Gas Report. https://www.socalgas.com/regulatory/documents/cgr/2014-cgr.pdf.

This page intentionally left blank.

6. Significant Unavoidable Adverse Impacts

At the end of Chapter 1, *Executive Summary*, is a table that summarizes the impacts, mitigation measures, and levels of significance before and after mitigation. Mitigation measures would reduce the level of impact, but the following impacts would remain significant, unavoidable, and adverse after mitigation measures are applied:

- Noise

Noise

- **Impact 5.6-2:** Sports field noise would result in substantial temporary noise increases at nearby homes and there would be exceedances of the City's exterior and interior noise limits.

The sound modeling input assumed a "partially localized" PA system, and such a system uses more speakers, each operating at reduced output settings, than a centralized PA system (which employs fewer, but louder speakers). A partially localized PA system is better than a centralized system, but a fully localized system would provide additional noise reduction. Therefore, Mitigation Measure N-2 has been incorporated to conduct additional acoustic investigations in order to optimize the project's sound system for both conveying information to the event attendees while minimizing offsite spill-over effects.

Mitigation Measure N-3 would provide a sound wall behind the visitor-side bleachers to provide noise shielding for the most-affected receptors to the north of the project site (i.e., within 350 feet of the visitor side bleachers), where the noise environment is expected to exceed the local exterior and interior noise standards during a high-capacity sports field event. Implementation of a sound wall with approximately 5.5 feet above the back end of the visitor-side bleachers and extending approximately 11 feet wide to the east and west end of the bleachers would result in some noise attenuation in the range of 3 to 10 dB. However, a sound wall per Mitigation Measure N-3 would not reduce noise impacts to levels below the local noise thresholds.

Although Mitigation Measures N-1, N-2, and N-3 would reduce noise in neighboring community areas during large-attendance events, the noise levels would not be reduced to below significance thresholds. Such facility events, therefore, would result in short-term noise impacts at existing residential properties that are significant and unavoidable.

6. Significant Unavoidable Adverse Impacts

This page intentionally left blank.

7. Alternatives to the Proposed Project

7.1 INTRODUCTION

7.1.1 Purpose and Scope

The California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) include a discussion of reasonable project alternatives that would "feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any significant effects of the project, and evaluate the comparative merits of the alternatives" (CEQA Guidelines Section 15126.6). This chapter identifies potential alternatives to the proposed project and evaluates them, as required by CEQA.

Key provisions of the CEQA Guidelines on alternatives (Section 15126.6[a] through [f]) are summarized below to explain the foundation and legal requirements for the alternatives analysis in the EIR.

- "The discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly" (15126.6[b]).

- "The specific alternative of 'no project' shall also be evaluated along with its impact" (15126.6[e][1]).

- "The no project analysis shall discuss the existing conditions at the time the Notice of Preparation (NOP) is published, and at the time the environmental analysis is commenced, as well as what would reasonably be expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives" (15126.6[e][2]).

- "The range of alternatives required in an EIR is governed by a 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project" (15126.6[f]).

- "Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent)" (15126.6[f][1]).

- For alternative locations, "only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR" (15126.6[f][2][A]).
- "An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative" (15126.6[f][3]).

For each development alternative, this analysis:

- Describes the alternative.
- Analyzes the impact of the alternative as compared to the proposed project.
- Identifies the impacts of the project that would be avoided or lessened by the alternative.
- Assesses whether the alternative would meet most of the basic project objectives.
- Evaluates the comparative merits of the alternative and the project.

Per the CEQA Guidelines Section 15126.6(d), additional significant effects of the alternatives are discussed in less detail than the significant effects of the project as proposed.

7.1.2 Project Objectives

As described in Section 3.2, the following objectives have been established for the proposed project and will aid decision makers in their review of the project, the project alternatives, and associated environmental impacts:

- Enhance on-campus facilities to reduce the number of events and practices that currently must travel off campus.
- Provide bleachers with adequate capacity to accommodate various spectator events currently held off campus.
- Provide lighting to allow night use of the sports field to accommodate school-related events and activities.
- Enhance opportunities for after-school athletic and extracurricular activities.
- Enable school pride by allowing home football games to occur on campus.
- Reduce the travel time and vehicle miles for home football games.
- Reduce the amount of District funds associated with transportation to and from off-campus event venues.

- Upgrade the athletic fields to boost student participation in athletics.
- Improve the safety and security systems at the sports field.
- Allow use of the facility by District-approved community groups.

7.2 ALTERNATIVES CONSIDERED DURING THE SCOPING/PROJECT PLANNING PROCESS

Community members made a number of recommendations for alternatives during the scoping/project planning process, including the following:

- Use other existing lighted sports field (No Project alternative). Only replace the track and field at CdM MS/HS, but no lighting.
- Move the sports field west to the center of the campus and increase setbacks.
- Provide a second soccer / practice field with synthetic surface and allow portable lights.
- Keep the track and field in its current location, thereby keeping the existing sports field configuration and not removing existing trees.
- Do not construct permanent structures; instead, provide portable, not-permanent bleachers and eliminate the bathroom/concession/entryway building.
- Reduce the bleacher size.
- Do not allow varsity games at the new sports field.
- Provide alternative lighting technologies and reduce pole heights.
- Provide alternative PA system technologies.
- Alternative site: Relocate to a different, larger area for a bigger field and enough space.
- Parking lot expansion and/or parking structure in the rear area of the campus as a prerequisite improvement.
- Alternative bleacher technologies to reduce noise (concrete or other noise-absorbing seats).

Moreover, the following recommendations were identified by Newport Citizens for Responsible Growth (NCRG):

7. Alternatives to the Proposed Project

- Replace natural fields with two synthetic sports fields (existing football field 60 x 120 yards (lacrosse ready); keep current configuration, no new layout of the field; current interior soccer/lacrosse field 120 x 75 yards).
- Provide new track while keeping location of current track.
- Provide portable lights for the second field (movable) or provide fixed 45-foot to 50-foot permanent lighting at interior field (LED preferred).
- Provide portable bleachers for the second field (movable).
- Maintain 6-foot fence height.

NCRG indicated that the NCRG preferred plan would accomplish the following objectives:

- Meets the needs of more students by allowing more practice time at CdM campus and providing two all-weather artificial fields.
- Reduce lighting impacts.
- Reduce noise impacts.
- No need for additional bleacher seating, and new restroom not required by DSA without additional seating capacity.
- Improved aesthetic quality by preserving mature buffer trees.
- Reduce impacts of parking and traffic problems, and provide field access from both front and back parking lots.
- Flexible seating and lighting placement to accommodate program needs.

While the District considered various options and recommendations during scoping process, the final selection of alternatives was based on the CEQA Guidelines Section 15126.6[f], which states that the selection of alternative shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. The Draft EIR identified only an operational noise impact during special events as a significant impact. Because no significant aesthetic or lighting impacts were found to be significant, and no traffic or parking impacts were determined to be significant, alternatives designed to reduce these impacts did not have the highest priority while selecting alternatives for detailed review.

7.3 ALTERNATIVES REJECTED FROM FURTHER REVIEW

The following is a discussion of the alternatives considered during the scoping and planning process and the reasons why they were not selected for detailed analysis in this Draft EIR (EIR).

7.3.1 Alternative Sites

CEQA requires that the discussion of alternatives focus on alternatives to the project *or* its location that are capable of avoiding or substantially lessening any significant effects of the project. The key question and first step in the analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. The proposed project would allow various practices and games that are currently held offsite to be held onsite at the CdM MS/HS sports field. Construction and operation of a new sports field at another location would not meet the District's main objective for the project, which is to enhance on-campus sports facilities to reduce the number of events and practices that currently occur off-campus. Additionally, only locations that would avoid or substantially lessen any of the significant effects of the project need to be considered for inclusion in the EIR (Guidelines Sec. 15126[5][B][1]). Construction and operation of a similar facility at an offsite location would likely result in similar noise impacts. Furthermore, the No Project Alternative discussed in Section 7.5 is considered an "alternative site" alternative, because students would continue to travel to various locations for games and practices. Discussion of alternative sites is unnecessary.

7.3.2 Alternative Public Address Technologies

There are many alternative methods of providing public address to spectators and participants. These include variables in the location, orientation, and height of speakers; amplifier control systems; and operational specifications. The noise modeling assumed a partially localized PA system, and alternative PA systems are best addressed as potential mitigation measures. In Section 5.6, *Noise*, Mitigation Measure N-2 requires that a Stadium Sound System Design Plan be prepared to achieve the design goal set forth by the mitigation measure. Therefore, while the alternative PA technology could potentially reduce significant noise impact, this alternative was rejected for further review.

7.3.3 Alternative Lighting Technologies/Pole Heights

A number of alternatives were suggested during the scoping process. These included lower pole lights, portable/temporary lights, and alternative light technologies such as LED and variations of LEDs. However, because nighttime lighting and glare impacts were determined to be less than significant, a full consideration of alternative lighting technologies and pole heights was deemed unnecessary. Additionally, alternatives generally apply to the entire project and not specific components such as the lighting system. Therefore, although these are valid environmental issues, reduced pole heights, shielding systems, and lighting technologies are addressed in Section 7.7.1, *Aesthetics*, as part of the discussion of Community Plan Alternative 2: Two Fields with Reduce Capacity and Portable Lights, and in Section 5.1, *Aesthetics*, and this alternative was rejected for further review as a stand-alone alternative.

7.3.4 Parking Garage Alternative

The preliminary review of potential parking impacts in the Recirculated Initial Study (Appendix A2) concluded that the on-campus parking capacity would be inadequate to handle a full-capacity event. However, as discussed in Impact 5.9-4 of Section 5.9, *Transportation and Traffic*, based on a detailed analysis of parking, the CdM campus was found to provide adequate on-campus parking to accommodate a 1,000-spectator event.

While no adverse parking impact related to the proposed project was identified, the District has considered two parking garage options. As depicted in Figure 7-1, *Parking Garage Alternative Plan*, Parking Garage-Option A would replace Parking Lot 1, and Parking Garage-Option B would replace Parking Lot 3. Option A would be closest to the field and therefore most advantageous for access to the field events. A parking garage at either location would be four or five stories, which would create its own visual impacts and further, the District does not have the budget to fund its estimated $7 million-plus cost.

A parking garage would improve parking conditions during the school day when parked cars intrude into adjoining neighborhoods. However, based on the survey of parked cars during event times and analysis of event-generated parking, no significant project-related parking impact was identified. As a result, the parking garage alternative was rejected for further analysis.

7.4 ALTERNATIVES SELECTED FOR FURTHER ANALYSIS

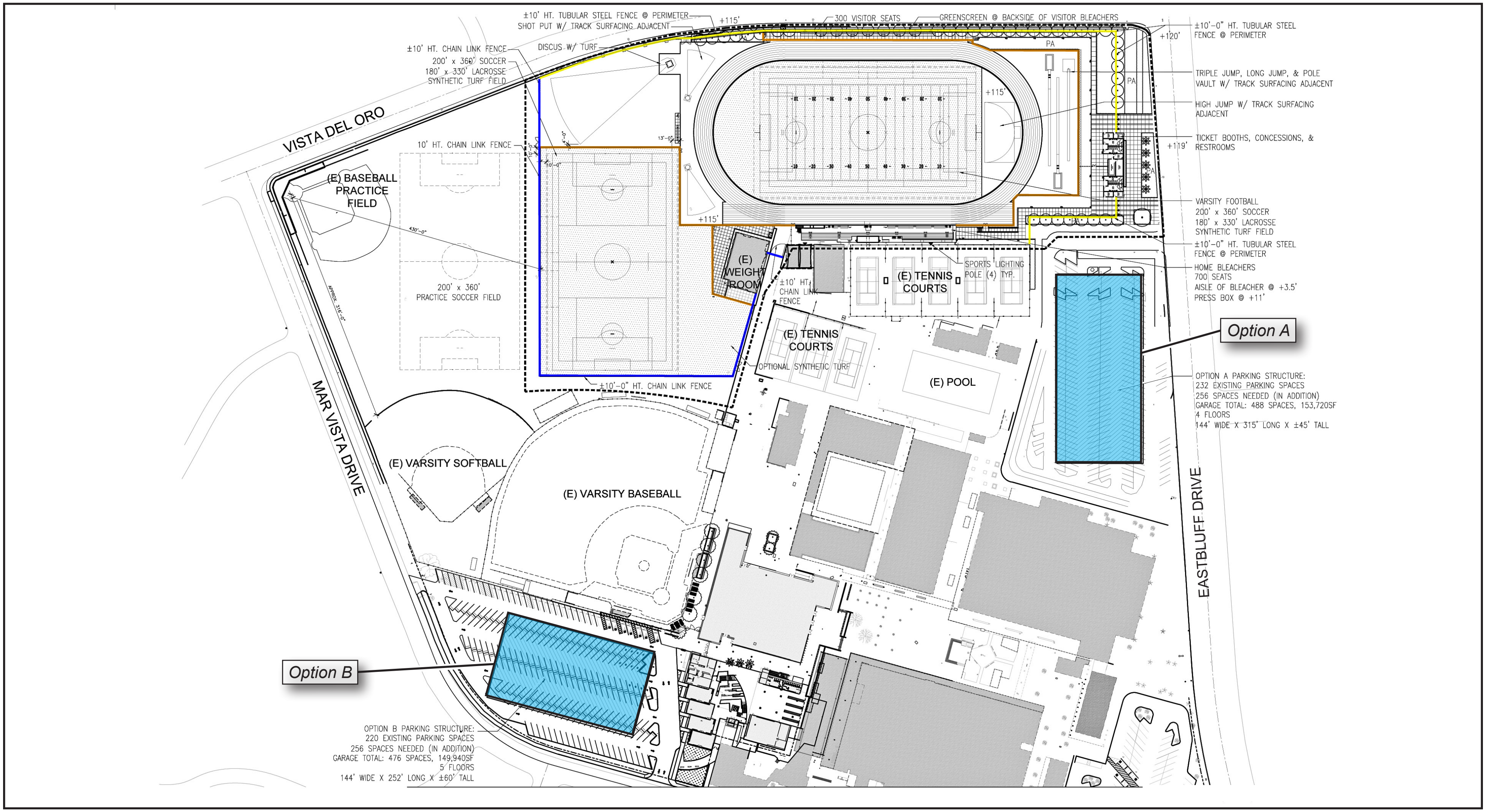
Based on the criteria listed in Section 7.1.1, the following three alternatives have been determined to represent a reasonable range of alternatives that have the potential to feasibly attain most of the basic objectives of the project, but may avoid or substantially lessen any of the significant effects of the project. These alternatives are analyzed in detail in the following sections.

- No Project Alternative
- Community Plan Alternative 1: Two Fields with Reduced Capacity and No Lights
- Community Plan Alternative 2: Two Fields with Reduced Capacity and Portable Lights
- Community Plan Alternative 3: Two Fields with Reduced Capacity and Permanent Lights

An EIR must identify an "environmentally superior" alternative, and where the No Project Alternative is identified as environmentally superior, the EIR is then required to identify as environmentally superior an alternative from among the others evaluated. Each alternative's environmental impacts are compared to the proposed project and determined to be environmentally superior, neutral, or inferior. However, only those impacts found significant and unavoidable are used in making the final determination of whether an alternative is environmentally superior or inferior to the proposed project. Only the impact involving air noise was found to be significant and unavoidable. Section 7.7 identifies the Environmentally Superior Alternative.

Figure 7-1 - Parking Garage Alternative Plan

7. Alternatives



+/- 10' Ht. Tubular Steel Fence

+/- 10' Ht. Chain Link Fence

+/- 4' Ht. Chain Link Fence

Parking Garage Options

0 250
Scale (Feet)

Base Map Source: LPA, 2016

This page intentionally left blank.

7.5 NO PROJECT ALTERNATIVE

The CEQA Guidelines requires the analysis of a No Project Alternative. This analysis must discuss the existing site conditions as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved.

Under the No Project Alternative, the proposed synthetic turf field and track, 1,000-seat capacity bleachers, 80-foot light poles, and home ticket booth and concession building would not be constructed. The existing track and field would continue to be used only during the day time, and CdM MS/HS students would continue to travel to other facilities in the District for some practices and games. This alternative would not meet any of the project objectives.

7.5.1 Aesthetics

Under this alternative, no structural changes to the existing CdM campus facilities would occur, and some of the school practices and games would continue to take place away from the CdM campus. No tall light poles and bleachers would be added to the existing sports field, and no changes to the physical environment would occur. Without nighttime lighting, no spill and glare impact would occur. This alternative is environmentally superior to the proposed project.

7.5.2 Air Quality

No construction would be required under this alternative; therefore, no construction-related air quality impacts would occur. Compared to the proposed project, there would be higher mobile source emissions for long-term operation, because students would continue to be transported to other practice fields and stadiums. Under the proposed project, athletic activities would take place on the CdM campus, reducing vehicle miles and subsequently reducing mobile source emissions. Under the No Project Alternative, an overall reduction in mobile source emissions would not occur. The No Project Alternative is environmentally superior to the project during construction, but inferior during operation.

7.5.3 Cultural Resources

Under this alternative no earthwork or soil disturbance would occur. Ground disturbance during project development that may discover and damage buried archaeological and paleontological resources would be eliminated. This alternative would eliminate required mitigation measures for possible archaeological and paleontological resources. The No Project Alternative is considered environmentally superior to the proposed project for cultural resources.

7.5.4 Greenhouse Gas Emissions

Under this alternative, no building, bleachers, and lighting system development would occur. Therefore, the projected GHG from onsite energy uses would be less than the proposed project. However, more GHG would be generated by students and visitors driving to various locations for practices and games, which would likely outweigh the GHG from energy uses. Therefore, overall, this alternative is environmentally inferior to the proposed project.

7.5.5 Hydrology and Water Quality

No ground disturbance would result under this alternative; therefore, no construction-related water quality impact would occur. Without the synthetic turf field, no change to the volume or velocity of stormwater would occur., and runoff quality would not change. This alternative is environmentally superior to the proposed project.

7.5.6 Noise

No construction noise would occur under this alternative. All scheduled night time activities would continue to be held at other facilities, such as Davidson Field at Newport Harbor High School in Newport Beach, Jim Scott Stadium at Estancia High School in Costa Mesa, and LeBard Stadium at Orange Coast College (OCC) in Costa Mesa. Therefore, noise would not increase at the residences adjacent to the CdM campus. This alternative would eliminate noise and the required mitigation measures related to short-term construction and operational event noise. Additionally, this alternative would eliminate the significant and unavoidable sports field event noise. This alternative is environmentally superior to the proposed project for noise.

7.5.7 Public Services

Under this alternative, no changes to the public services demand would occur. Because of an increase in the site-specific public services demands under the proposed project, the No Project Alternative is considered environmentally superior to the proposed project.

7.5.8 Recreation

Under this alternative, the community members would continue to use the existing track and field without restrictions outside of normal school operation. Therefore, no increased use for other city parks and recreational facilities would occur. This alternative is environmentally superior to the proposed project.

7.5.9 Transportation and Traffic

Under this alternative, total vehicle trips and circulation patterns would remain as they currently exist. All study intersections currently operate at level of service (LOS) D or better except for one intersection (i.e., MacArthur Blvd./Ford Rd./Bonita Cyn Dr.), and the traffic conditions would not change. Although the traffic analysis in Section 5.9, *Transportation and Traffic*, assumes traffic impacts as new, these trips on the road currently occur as students and visitors travel to other locations for practices and games. Therefore, the proposed project would result in reduced vehicle miles traveled (VMT) compared to no-project conditions, and this beneficial impact would be eliminated under the No Project Alternative. Although overall VMT would be greater under this alternative, localized traffic in the neighborhood surrounding the project site would be less. No changes to parking capacity would occur under this alternative. Because of the reduction in localized traffic, the No Project Alternative is considered environmentally superior to the proposed project.

7.5.10 Energy

Under this alternative, no energy related to nighttime lighting and the restroom/ticket/concession building operation would be used. Although site-specific energy would be less under this No Project Alternative, the overall energy use would be similar to the proposed project, since the practices and games would continue to be played at other facilities that also use energy resources. Since students and visitors would have to drive farther under this alternative, more transportation energy would be used under this alternative. The overall energy demands would not change much under this alternative, and this alternative is environmentally similar to the proposed project.

7.5.11 Conclusion

This alternative would lessen environmental impacts in the areas of aesthetics, construction air quality, cultural resources, hydrology and water quality, noise, public services, recreation, and transportation and traffic; worsen impacts in the areas of operational air quality and GHG emissions; and have similar impacts on the overall energy resources. This alternative would avoid the significant and unavoidable impacts related to operational event noise. Therefore, this alternative would be considered environmentally superior to the proposed project.

7.6 COMMUNITY PLAN ALTERNATIVE 1: TWO FIELDS WITH REDUCED CAPACITY AND NO LIGHTS

This alternative would provide two synthetic fields as shown in Figure 7-2, *Two Fields with Reduced Capacity and No Lights Alternative Plan*, with no nighttime lighting, and reduce the bleacher seat capacity to 664 seats from 1,000 seats. All seating would be provided on the south side of the main field, and no noise wall on the north side would be provided. As with the proposed project, a partially localized PA system would be installed. This alternative would reduce significant and unavoidable operational noise impacts emanating from the visitor side bleachers and reduce aesthetic impacts from the 80-foot lights. With 664-seat bleachers, a separate restroom/ticket/concession building would not be provided, as it would not be required under the Division of the State Architect (DSA) requirement. Two synthetic fields would allow increased field usage with minimal scheduling conflicts and reduce injuries from uneven or compacted turf. However, no nighttime practices or games would occur under this alternative.

7.6.1 Aesthetics

This alternative would convert the existing turf sports fields to synthetic fields, but no 80-foot light poles and restroom/ticket/concession building would be constructed. The existing 664-seat portable bleachers would be replaced with permanent bleachers with the same capacity, and no press-box would be provided. As shown in Figure 7-2, existing trees along Vista Del Oro would be replaced with new landscaping, and because all seating would be on the south side, no visitor-side bleachers with sound wall would be constructed. As with the proposed project, 10-foot-high tubular steel fencing would be provided along the CdM campus boundary. Because there would be no nighttime lighting, no light spill and glare impacts would occur, and the nighttime views from surrounding sensitive receptors would not change. This alternative would primarily update and replace the existing CdM athletic facilities without increasing capacity or adding nighttime use. This alternative would likely improve the overall quality of the CdM sports field without causing any spill light or glare impacts. This alternative would be environmentally superior compared to the proposed project.

7.6.2 Air Quality

Development of the second field would increase the area to be disturbed but would eliminate the light pole, visitor side bleacher, noise wall, and restroom/ticket/concession building construction. Therefore, construction duration under this alternative would be similar to the proposed project. The maximum daily emission during construction is anticipated during demolition of the existing main sports field, and construction of the second field would not require substantially more demolition because the second field location does not contain above-grade structures or hard surface. Therefore, temporary air quality impacts during construction would be similar to the proposed project. Development of a second field would allow more practices at the CdM campus but would not allow evening games; therefore, students and visitors would continue to travel farther distances to other facilities for games. Mobile sources represent the greatest regional operational emissions, and while the second field would reduce some vehicle miles traveled (VMT) related to practices, no changes to evening games would occur. Therefore, operational emissions would be greater under this alternative compared to the proposed project. This alternative is environmentally similar to the proposed project during construction, but inferior during operation.

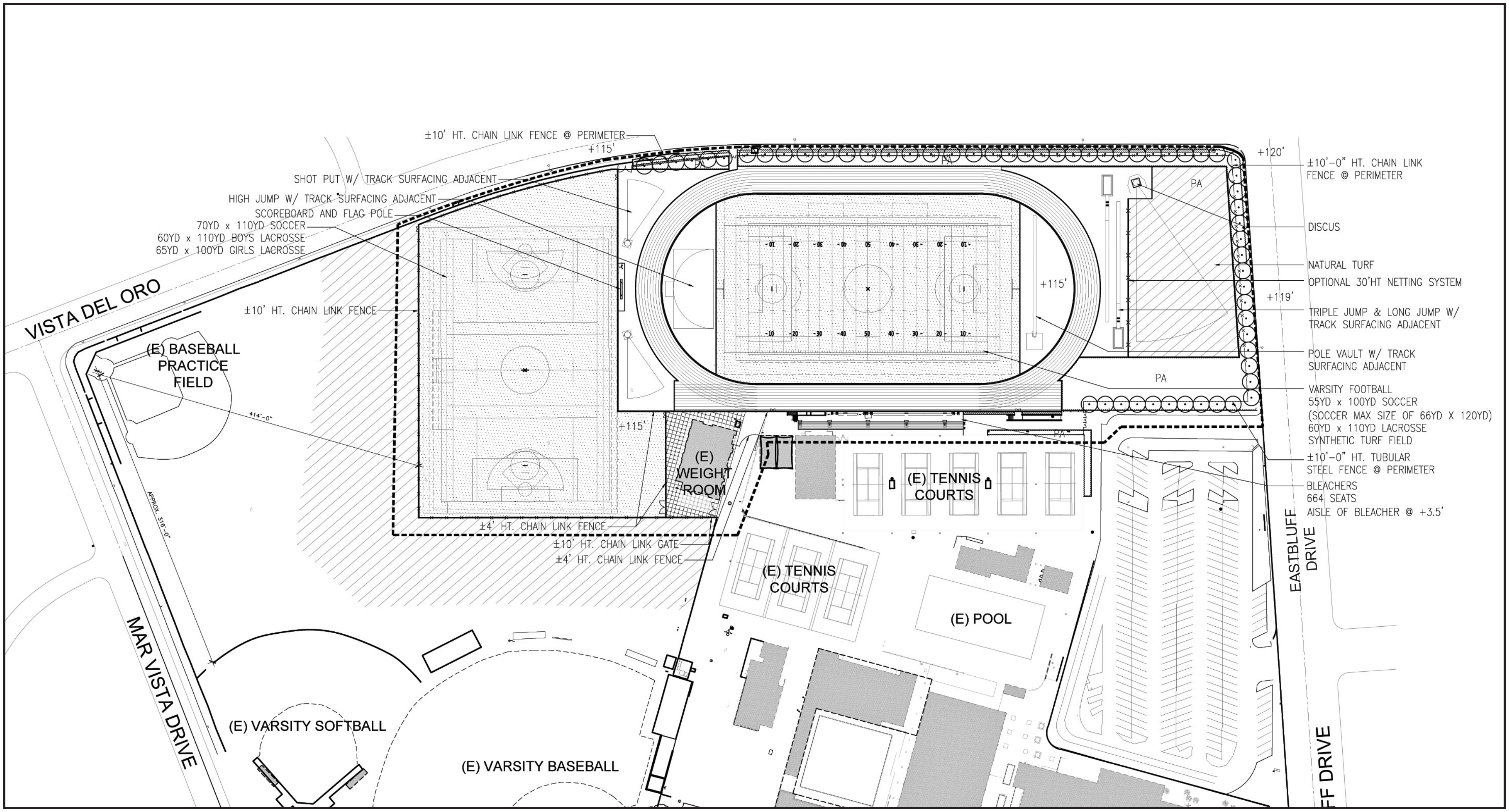
7.6.3 Cultural Resources

This alternative would provide two synthetic turf fields, therefore, increase the area to be graded and disturbed. Additional areas to be disturbed would result in increased potential for discovery of buried cultural resources. However, as with the proposed project, mitigation measures would be required to reduce impacts to a less than significant level. With mitigation, this alternative would be environmentally similar to the proposed project.

7.6.4 Greenhouse Gas Emissions

This alternative would generate GHG emissions from vehicle trips but emissions from building and lighting system operation (indirectly from purchased electricity use and directly through fuel consumed for building heating and from water/wastewater generation, and waste disposal would be eliminated. The greatest project-related GHG emission source is from vehicle trips, and electricity used for lighting is also a major emission source. Although VMT related to practices would be reduced compared to the existing conditions, VMT from evening games would be unaffected under this alternative. Considering that the greatest project-related GHG source is from vehicle trips, this alternative is environmentally inferior to the proposed project.

Figure 7-2 - Two Fields With Reduced Capacity and No Lights Alternative Plan



0 200
Scale (Feet)

Base Map Source: LPA, 2016

This page intentionally left blank.

7.6.5 Hydrology and Water Quality

This alternative would provide two synthetic turf fields, and the area to be graded and disturbed and converted to synthetic turf fields would be greater than the proposed project. Therefore, an increase in the volume and velocity of runoff water and more erosion impact is anticipated. However, as with the proposed project, required compliance with NPDES permit and implementation of appropriate best management practices (BMP) per Storm Water Pollution Prevention Plan (SWPPP) and water quality management plan (WQMP) would ensure that impacts are reduced to a less than significant level. This alternative would increase the surface area with the cryogenic styrene-butadiene rubber field. As with the proposed project, the stormwater runoff would undergo treatment and underground infiltration system prior to discharging to the city's storm drain system. Although impacts would not be significant, increased volume of runoff water would result in greater hydrology and water quality impact compared to the proposed project. This alternative is environmentally inferior to the proposed project.

7.6.6 Noise

No evening games would occur under this alternative. The elimination of north side bleachers and the reduction in capacity from 1,000 seats to 664 seats for daytime events would result in decreased noise impacts at all receiver locations. Table 7-1 shows that, under the proposed project, three receiver locations (A, N, and S) would experience an audible noise increase of 3 dB or more—14.5 dBA, 3.8 dBA, and 5.5 dBA L_{eq}, respectively. Under this alternative, only Location A would experience an audible noise increase with 3.5 dBA L_{eq}. The noise level increase at all other receiver locations would range from 0.0 to 1.8 dBA L_{eq}. Therefore, with a mitigation measure that requires subsequent sound system design plan to optimize the PA system, it is anticipated that no significant and unavoidable full-capacity event noise would occur. Additionally, under this alternative, although more practice would occur during daytime hours, no nighttime practices or games would take place, further reducing noise impacts at night. Therefore, this alternative is environmentally superior to the proposed project. Full-capacity event noise is a significant and unavoidable impact of the project.

7. Alternatives to the Proposed Project

Table 7-1 Future Ambient-plus-Event Predicted Community Noise Levels

Modeling Receiver Location	Proposed Project				Reduced Capacity Alternative			
	Future Ambient + CdM Sports Field Event, dBA[1]		Calculated Change due to CdM Sports Field Event, dB		Future Ambient + CdM Sports Field Event, dBA[1]		Calculated Change due to CdM Sports Field Event, dB	
	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}
A	***71.6***	87.2	**14.5**	**5.9**	***60.6***	81.8	**3.5**	0.5
B	***58.1***	83.1	1.9	0.1	***56.6***	83.0	0.4	0.0
C	***66.3***	78.1	1.2	2.6	***65.4***	76.3	0.3	0.8
D	***65.1***	75.6	0.0	0.1	***65.1***	75.6	0.0	0.1
E	***65.2***	75.8	0.1	0.3	***65.1***	75.6	0.0	0.1
F	***65.4***	76.3	0.3	0.8	***65.1***	75.6	0.0	0.1
G	52.6	66.4	0.1	0.2	52.5	66.2	0.0	0.0
H	***58.8***	77.2	0.4	0.2	***58.5***	77.1	0.1	0.1
I	***64.4***	81.5	0.1	0.0	***64.3***	81.5	0.0	0.0
J	***55.8***	79.4	0.1	0.0	***55.7***	79.4	0.0	0.0
K	***56.3***	79.5	0.6	0.1	***55.7***	79.4	0.0	0.0
L	***56.5***	79.5	0.8	0.1	***55.8***	79.4	0.1	0.0
M	***64.3***	81.5	0.0	0.0	***64.3***	81.5	0.0	0.0
N	***60.9***	81.9	**3.8**	0.6	***58.0***	81.4	0.9	0.1
O	***55.3***	72.0	1.0	0.6	55.0	71.8	0.7	0.4
P	54.4	71.5	0.1	0.1	54.3	71.4	0.0	0.0
Q	***61.0***	75.7	0.1	0.1	***60.9***	75.6	0.0	0.0
R	***61.0***	75.7	0.1	0.1	***60.9***	75.6	0.0	0.0
S	***62.6***	82.3	**5.5**	1.0	***58.9***	81.5	1.8	0.2
T	***57.3***	83.1	1.1	0.1	***56.6***	83.0	0.4	0.0
U	***60.5***	78.3	0.1	0.0	***60.4***	78.3	0.0	0.0

Source: SoundPLAN 7.1 and L_{eq} input data from noise monitoring at a high school football game.
Notes: Municipal Code Exterior Noise Limits: 55 dBA $L_{eq\text{-}15min}$ at residential receptors (until 10 PM).
Numbers in ***bold italics*** indicate sound levels greater than the Newport Beach Municipal Code limits for the L_{eq} noise level metric (also refer to the main text for additional context).
Numbers in **bold** and shaded indicate an increase in the sound level of more than 3 dBA over the existing ambient, which is considered a readily discernible change.
[1] This is the predicted sound level contribution from the sports field added to the measured ambient sound levels in logarithmic function.

7.6.7 Public Services

Under this alternative, no large crowd-gathering events would occur on CdM campus during the evening, and varsity football games would continue to be held at other facilities. There would be no change in bleacher seat capacity compared to the existing condition; therefore, no increase in public service demands would occur. This alternative is environmentally superior to the proposed project.

7.6.8 Recreation

As with the proposed project, unauthorized use of both fields would be prohibited pursuant to the District's adopted field use policy. Therefore, this alternative would also require residents to use other existing parks and recreational facilities. Impacts to nearby recreational facilities would be similar to that of the proposed project. This alternative is environmentally similar to the proposed project.

7.6.9 Transportation and Traffic

Under this alternative, only a slight increase in traffic during practices is anticipated, and no changes during PM peak hours for events would occur. The existing sports field already has 664-seat bleachers, and without lights for evening events, no increase in traffic is anticipated compared to the existing conditions. Students and visitors would continue to travel to other facilities for events. No mitigation measure for a minor signal-timing change at Jamboree Boulevard and University Drive/Eastbluff Drive intersection would be necessary. Parking impacts would be reduced compared to the proposed project, since there would not be full-capacity evening events. This alternative is environmentally superior to the proposed project.

7.6.10 Energy

Under this alternative, site-specific demands related to electricity and natural gas would be reduced compared to the proposed project because there would not be a lighting system and restroom/ticket/concession building would not be constructed. Unlike the proposed project, only the practice-related VMT would be reduced and not the game-related VMT. Therefore, this alternative would result in increased transportation energy consumption relative to the proposed project. This alternative would lessen electricity and natural gas impacts but worsen transportation energy impact. Although there are some marginal differences in overall energy consumption, the cumulative energy demands under this alternative would not be substantially greater or lesser compared the proposed project. This alternative is environmentally similar to the proposed project.

7.6.11 Conclusion

This alternative would lessen environmental impacts in the areas of aesthetics, noise, public services, and transportation and traffic; have similar impacts in the areas of cultural resources, recreation, and energy; and have greater impacts in the areas of air quality, GHG emissions, and hydrology and water quality. However, the proposed project was determined to have less than significant impacts with or without mitigation measures in all areas except noise, and this alternative would avoid the significant event noise impact. Therefore, this alternative would be considered environmentally superior compared to the proposed project.

7.7 COMMUNITY PLAN ALTERNATIVE 2: TWO FIELDS WITH REDUCED CAPACITY AND PORTABLE LIGHTS

This alternative would provide two synthetic fields with a portable lighting system and reduce bleacher seat capacity to 664 seats. All seats would be provided on the south side of the main field, and no noise wall on the north side would be constructed. Five portable light poles would be provided, as shown in Figure 7-3, *Two*

7. Alternatives to the Proposed Project

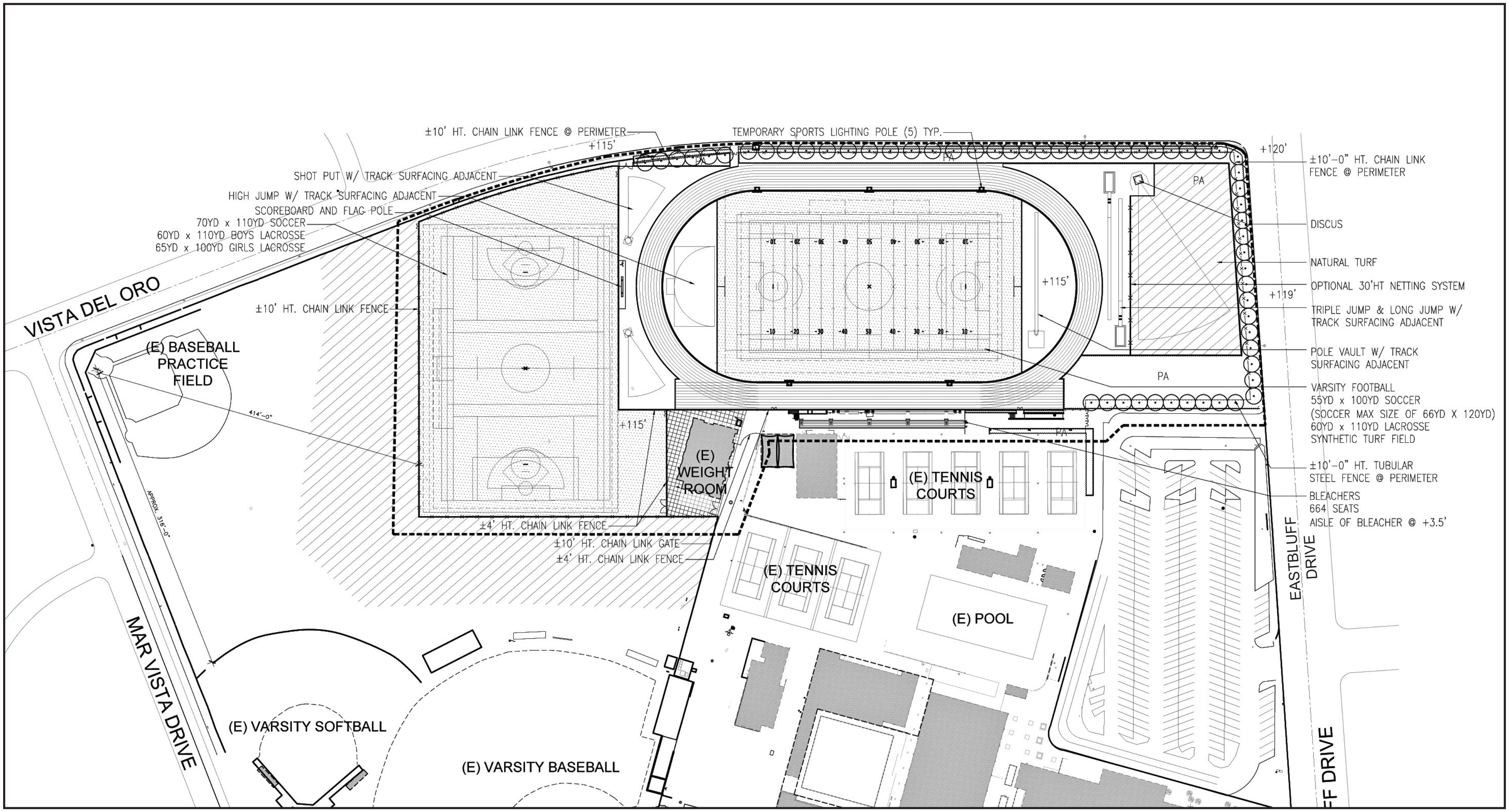
Fields with Reduced Capacity and Portable Lights Alternative Plan, which could be relocated to the second practice field. Portable lights would allow occasional nighttime games and nighttime practices. A partially localized PA system would be provided. This alternative would reduce operational noise impacts emanating from the visitor-side bleachers and reduce aesthetic impacts. With 664-seat capacity bleachers, a separate restroom/ticket/concession building would not be provided, since it would not be required by the DSA. Two synthetic fields would allow increased field usage with minimal scheduling conflicts and reduce injuries from uneven and compacted turf.

7.7.1 Aesthetics

Under this alternative, five portable light poles would be provided for nighttime events and practices, three on the north side and two on the south side as shown in Figure 7-3. The portable lighting could also be placed on the second field for practices, and the number of poles could be adjusted depending on the type of activity performed. It is anticipated that practices would require less lighting than a football game. A typical portable lighting system used by the District is shown in Figure 7-4, *Typical Portable Light*, and the maximum pole heights would not exceed 35 feet. No visitor-side bleachers and noise wall would be provided. As the light pole height would be reduced by more than half, no daytime visual impacts from scenic viewsheds are anticipated. Although poles would be visible from various community view areas, they would not extend above background skyline from the west community view location and would be shielded by trees from the east community view location. The elimination of the restroom/concession/ticket building on the east would also result in a less modified visual character along Eastbluff Drive and Vista Del Oro from the existing conditions.

Nighttime lighting impacts would be greater under this alternative because the portable lights do not provide as much control over spill light and glare as the proposed permanent lighting system. As explained in Section 5.1, *Aesthetics*, taller poles allow light fixtures to be aimed more directly on the playing surface, which reduces the amount of light spilling into surrounding areas. The visors and shielding provided for each luminaire under the proposed project would also minimize sky glow and glare impacts. Therefore, with the lower pole heights and unshielded luminaries under this alternative, light would spill beyond its intended boundaries and be more visible from offsite positions. Although the portable lights would be placed inside the track of the sports field, as shown in Figure 7-3, creating more distance from residences north of Vista Del Oro for the main field compared to the proposed project, greater light trespass and glare impacts are anticipated. The portable lights under this alternative would be similar in height or shorter than the existing swimming pool lights and would likely cause similar or brighter glare impact compared to the proposed project. Without the necessary pole height for controlled aim, the lighting levels beyond the CdM boundaries for the main sports field would be greater than identified in Figure 5.1-11, *Lighting Levels Plan (Horizontal)*, and Figure 5.1-12, *Spill Light at 150 Feet (Horizontal)*. If the portable lights are used for practices on the second field to the west, the lights would face east and west, and lights would be closer to west residential uses. Two fields with portable lights would also allow opportunities for both fields to be lit during evening hours. Therefore, there would be two fields with glowing lights similar to the existing swimming pool lights shown in Figures 5.1-17 through 5.1-19. The same field use policy as the proposed project would be applicable. Overall, this alternative is environmentally inferior to the proposed project.

Figure 7-3 - Two Fields With Reduced Capacity and Portable Lights Alternative Plan



0 200
Scale (Feet)

Base Map Source: LPA, 2016

7. Alternatives to the Proposed Project

This page intentionally left blank.

Figure 7-4 - Typical Portable Light System
7. Alternatives

Source: N-MUSD, 2016

This page intentionally left blank.

7.7.2 Air Quality

Development of the second field would increase the area to be disturbed but would eliminate the visitor-side bleacher, noise wall, and restroom/ticket/concession building construction. Therefore, construction duration under this alternative would be similar to the proposed project. The maximum daily emissions during construction is anticipated during demolition of the existing main sports field. Construction of the second field would not require substantially more demolition because the second field location does not contain above-grade structures or hard surface. Therefore, temporary air quality impacts during construction would be similar to the proposed project.

Development of a second field and portable lights would allow evening practices and games to occur. However, games with over 664 spectators would continue to be played at other facilities, therefore, higher vehicle miles are anticipated compared to the proposed project. Mobile sources represent the greatest regional operational emissions. Additionally, greater operational emissions would also occur due to a diesel-powered portable lighting system that would directly generate criteria pollutants, whereas only indirect emissions from electricity use would occur under the proposed project. As discussed in Section 5.2, *Air Quality*, the majority of the estimated health risks from toxic air contaminants can be attributed to diesel exhaust. Overall, this alternative is environmentally inferior to the proposed project.

7.7.3 Cultural Resources

This alternative would provide two synthetic turf fields, thereby increasing the area to be graded and disturbed. Additional disturbed area would increase the potential for discovery of buried cultural resources. However, as with the proposed project, mitigation measures would be required to reduce impacts to a less than significant level. With mitigation, this alternative would be environmentally similar to the proposed project.

7.7.4 Greenhouse Gas Emissions

This alternative would generate GHG emissions from vehicle trips and the portable lighting system. The proposed project's lighting system would generate GHG emissions indirectly from purchased electricity use; however, the portable lighting system would generate direct emissions from diesel fuel consumption. Other direct emissions—from fuel consumed for building heating, from water/wastewater generation, and from waste disposal—would be eliminated. This alternative would result in higher mobile source impacts as events exceeding 664 spectators would continue to be played at other facilities, increasing vehicle miles compared to the proposed project. Therefore, this alternative is environmentally inferior to the proposed project.

7.7.5 Hydrology and Water Quality

This alternative would provide two synthetic turf fields, increasing the area to be graded and disturbed and converted to synthetic turf fields. Therefore, increased volume and velocity of runoff water, and more erosion impact are anticipated. However, as with the proposed project, required compliance with the NPDES permit and implementation of appropriate best management practices (BMP) per the Storm Water Pollution

Prevention Plan (SWPPP) and water quality management plan (WQMP) would ensure that impacts are reduced to a less than significant level. This alternative would increase the surface area with the cryogenic styrene-butadiene rubber field. As with the proposed project, the stormwater runoff would undergo treatment and underground infiltration prior to discharging to the City's storm drain system. Although impacts would not be significant, the increased volume of runoff water would result in greater hydrology and water quality impacts compared to the proposed project. This alternative is environmentally inferior to the proposed project.

7.7.6 Noise

This alternative would allow evening events to occur on CdM campus. Reducing the bleacher capacity from 1,000 seats to 664 seats by removing the north side bleachers would result in decreased noise impacts at all receiver locations. Table 7-1 shows that under the proposed project, three receiver locations (A, N, and S) would experience an audible noise increase of 3 dB or more—14.5 dBA, 3.8 dBA, and 5.5 dBA L_{eq}, respectively. Under this alternative, only Location A would experience an audible noise increase—3.5 dBA L_{eq}. The increases at all other receiver locations would range from 0.0 to 1.8 dBA L_{eq}. Therefore, with a mitigation measure that requires a subsequent sound system design plan that optimizes the PA system, it is anticipated that no significant and unavoidable full-capacity event noise would occur. Additionally, under this alternative, while more practice would occur during daytime hours, no nighttime practices or games would take place, further reducing noise impacts at night. Therefore, this alternative is environmentally superior to the proposed project. Full-capacity event noise is a significant and unavoidable impact of the proposed project.

7.7.7 Public Services

Under this alternative, evening practices and games would be played at CdM with portable lights. With reduced bleacher capacity and elimination of the restroom/ticket/concession building, the fire and police protection services demands would be slightly reduced compared to the proposed project. This alternative is environmentally superior to the proposed project.

7.7.8 Recreation

As with the proposed project, unauthorized use of both fields would be prohibited pursuant to the District's adopted field use policy. Therefore, this alternative would also require residents to use other existing parks and recreational facilities. Impacts to nearby recreational facilities would be similar to that of the proposed project. This alternative is environmentally similar to the proposed project.

7.7.9 Transportation and Traffic

Under this alternative, evening practices and events would occur, but the full-capacity event attendees would be reduced by approximately 33 percent, from 1,000 spectators to 664 spectators. Therefore, transportation and traffic impacts would be reduced compared to the proposed project. Even without the project, five intersections would operate at LOS E or worse under opening year scenario, and only one intersection (Jamboree Rd & University Dr./Eastbluff Rd.) would result in an increase of 0.010 second change in delay to cause a significant impact. However, this increase would likely be reduced to a less than significant level under this alternative. Parking capacity impact would also be reduced under this alternative, although no significant impact has been identified under the proposed project. This alternative is environmentally superior to the proposed project.

7.7.10 Energy

Under this alternative, although no additional electricity and natural gas energy would be consumed, diesel fuel energy demands would increase. Like the proposed project, practices and events would take place on CdM campus, reducing related VMT. Since a different type of energy would be consumed under this alternative, the overall energy demands under this alternative would not be substantially greater or less compared the proposed project. This alternative is environmentally similar to the proposed project.

7.7.11 Conclusion

This alternative would lessen environmental impacts in the areas of noise, public services, and transportation and traffic; have similar impacts in the areas of construction air quality, cultural resources, and recreation, and energy; and have greater impacts in the areas of aesthetics, operational air quality, GHG emissions, and hydrology and water quality. However, the proposed project was determined to have less than significant impacts with or without mitigation measures in all areas except noise, and this alternative would avoid the significant event noise impact. Therefore, this alternative would be considered environmentally superior when compared to the proposed project.

7.8 COMMUNITY PLAN ALTERNATIVE 3: TWO FIELDS WITH REDUCED CAPACITY AND PERMANENT LIGHTS

This alternative would provide two synthetic fields with metal halide permanent lighting systems on both fields and reduce bleacher seat capacity to 664 seats. All seats would be provided on the south side of the main field, and no noise wall on the north side would be constructed. No permanent bleachers would be provided on the second field and a partially localized PA system would be provided on the main field only. Four permanent light poles would be provided on the main field as well as the second field, as shown in Figure 7-5, *Two Fields with Reduced Capacity and Permanent Lights Alternative Plan*. Permanent lights would allow nighttime games and practices on both fields simultaneously. This alternative would reduce operational noise impacts emanating from the visitor-side bleachers during events. With 664-seat capacity bleachers, a separate restroom/ticket/concession building would not be provided, since it would not be required by the DSA. Two synthetic fields with lights would allow increased field usage with minimal scheduling conflicts and reduce injuries from uneven and compacted turf.

7.8.1 Aesthetics

Under this alternative, four metal halide light poles would be provided for nighttime events and practices on the main sports field and on the second field. Two poles would be provided on the east side of the field and two poles on the west side of the field for the second field as shown in Figure 7-5, *Permanent Lighting on Two*

Fields with Reduced Capacity. All 8 permanent light poles would be 80-foot high each supporting 14 luminaires per pole. No visitor-side bleachers and noise wall would be provided on the northern boundary, and new landscaping trees and 10-foot chain-link fencing would border both sports fields on the north. The total number of 80-foot light poles would increase from four to eight and the number of luminaires would increase from a total of 56 (14 luminaires per pole x 4 poles) with the proposed project to 112 (14 luminaires per pole x 8 poles) under this alternative. Therefore, it would not be speculative to determine that this alternative would result in greater daytime and nighttime aesthetic impacts, and no additional visual simulation was deemed necessary.

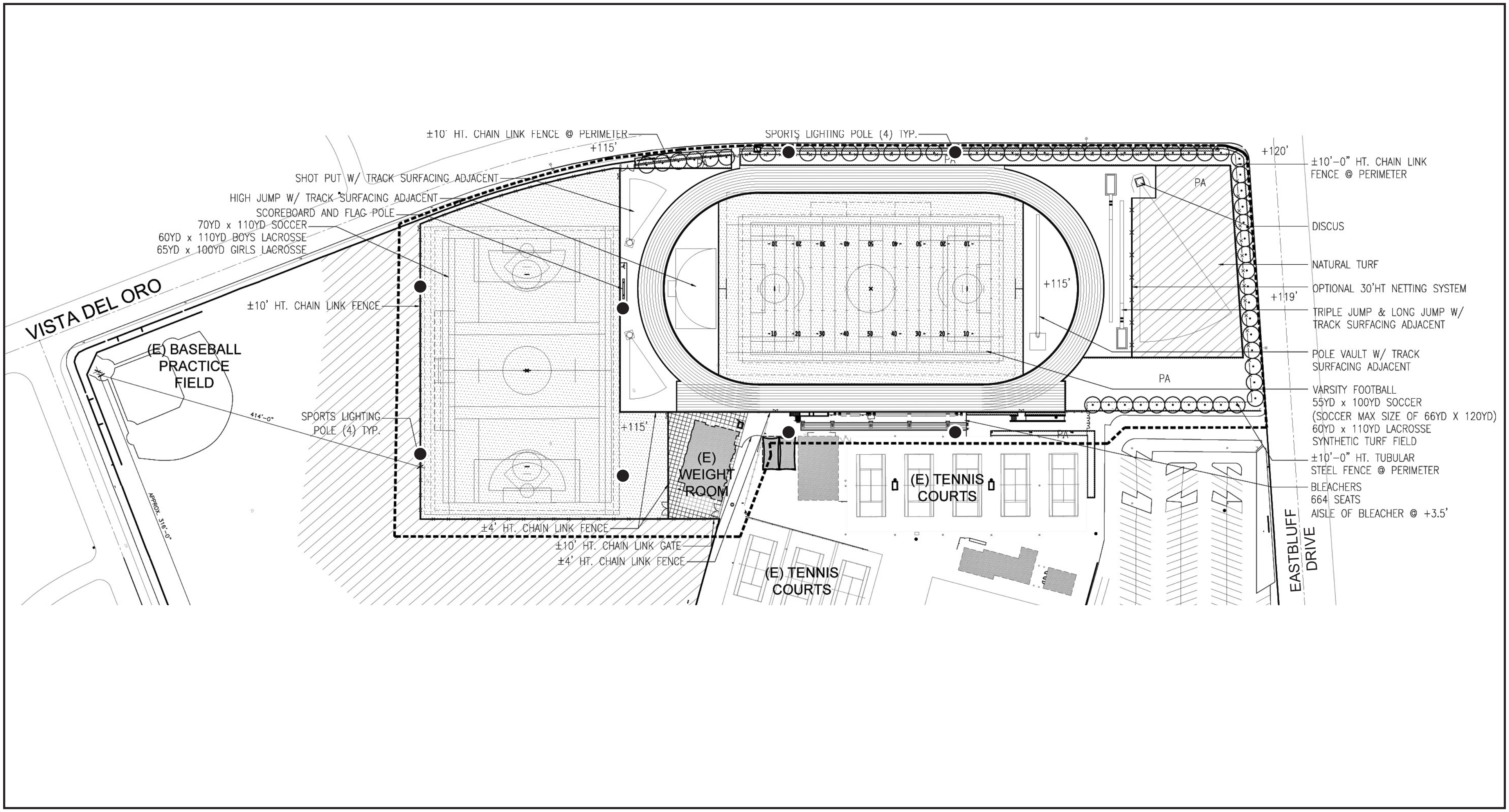
The four 80-foot poles for the main field are not readily recognizable from the nearby scenic viewsheds as demonstrated in the daytime visual simulations (i.e., Figure 5.1-4 through 5.1-6). Therefore, additional four more poles would not adversely change the background skyline from the scenic viewsheds. However, additional four more permanent poles would be visible from the surrounding residential neighborhoods and create additional impacts as more sensitive residential viewers would be impacted, especially in the areas near the second field, residential properties to the north and to the east. Therefore, daytime visual impacts would be greater under this alternative.

Nighttime lighting impacts would also be greater under this alternative because the number of luminaires and locations of the poles would increase. Consequently, more light trespass and glare impacts would occur. Even with the highly effective control of the light beams with optimal aiming point, expanded areas of lit field from one field to two, and the increased number of luminaires would create greater the spill light impacts compared to the proposed project. Moreover, as the light poles for the second field would be positioned east and west, whereas the main field lighting system is positioned north and south, additional viewing locations and directions would be susceptible to direct glare impacts. Therefore, more direct glare impacts would occur compared to the proposed project. The two fields with permanent lighting alternative would create more day and night visual and lighting impacts. This alternative is environmentally inferior to the proposed project.

7.8.2 Air Quality

Development of the second field with permanent lighting would increase the area to be disturbed but would eliminate the visitor-side bleacher, noise wall, and restroom/ticket/concession building construction. Therefore, construction duration under this alternative would be similar to the proposed project. The maximum daily emissions during construction is anticipated during demolition of the existing main sports field. Construction of the second field would not require substantially more demolition because the second field location does not contain above-grade structures or hard surface. Therefore, temporary air quality impacts during construction would be similar to the proposed project.

Figure 7-5 - Two Fields With Reduced Capacity and Permanent Lights Alternative Plan



● Sports Lighting Poles (8)

0 200
Scale (Feet)

Base Map Source: LPA, 2016

This page intentionally left blank.

Development of a second field with permanent lights would allow evening practices and games to occur. No additional bleachers seats would be provided on the second field and events exceeding 664 spectators would continue to be played at other facilities. Therefore, mobile source emission would be unaffected, as varsity football games would continue to be played at other facilities. Higher mobile source impacts are anticipated compared to the proposed project. Additional indirect emissions from electricity use for the second field lighting system would also occur. Overall, this alternative is environmentally inferior to the proposed project.

7.8.3 Cultural Resources

This alternative would provide two synthetic turf fields with permanent, thereby increasing the area to be graded and disturbed. Additional disturbed area would increase the potential for discovery of buried cultural resources. However, as with the proposed project, mitigation measures would be required to reduce impacts to a less than significant level. With mitigation, this alternative would be environmentally similar to the proposed project.

7.8.4 Greenhouse Gas Emissions

This alternative would generate GHG emissions from vehicle trips and the two permanent lighting systems. Reduced capacity of the bleachers would result in higher GHG emission impacts from the mobile sources as the games with over 664 spectators would continue to be played at other facilities. Two lighting systems would also generate greater GHG emissions indirectly from purchased electricity use. Other direct emissions—from fuel consumed for building heating, from water/wastewater generation, and from waste disposal—would be eliminated. This alternative would result in higher mobile source and indirect stationary source GHG impacts compared to the proposed project. This alternative is environmentally inferior to the proposed project.

7.8.5 Hydrology and Water Quality

This alternative would provide two synthetic turf fields, increasing the area to be graded and disturbed and converted to synthetic turf fields. Therefore, increased volume and velocity of runoff water, and more erosion impact are anticipated. However, as with the proposed project, required compliance with the NPDES permit and implementation of appropriate best management practices (BMP) per the Storm Water Pollution Prevention Plan (SWPPP) and water quality management plan (WQMP) would ensure that impacts are reduced to a less than significant level. This alternative would increase the surface area with the cryogenic styrene-butadiene rubber field. As with the proposed project, the stormwater runoff would undergo treatment and underground infiltration prior to discharging to the City's storm drain system. Although impacts would not be significant, the increased volume of runoff water would result in greater hydrology and water quality impacts compared to the proposed project. This alternative is environmentally inferior to the proposed project.

7.8.6 Noise

This alternative would allow evening practices and events to occur on two fields at the same time. Reducing the bleacher capacity from 1,000 seats to 664 seats by removing the north side bleachers would result in decreased noise impacts at all receiver locations during a game. Table 7-1 shows that under the reduced bleacher capacity alternative, only one location (Location A from Figure 5.6-2, *Noise Modeling Locations*) would exceed the threshold level of 3 dB at 3.5 dBA L_{eq}, therefore, with a mitigation measure that requires a subsequent sound system design plan that optimizes the PA system, it is anticipated that significant and unavoidable full-capacity event noise could be avoided. However, with the permanent lighting on the second field, simultaneous evening practices or events could be played on the second field, adding to the overall noise conditions. Without permanent bleachers on the second field, large spectator events would continue to be played at other facilities. Therefore, under this alternative, more practice would occur during daytime and nighttime hours, operational noise impacts would be less than the proposed project with 1,000 bleacher seats. Therefore, this alternative is environmentally superior to the proposed project. Full-capacity event noise is a significant and unavoidable impact of the proposed project.

7.8.7 Public Services

Under this alternative, more evening practices and games would be played at CdM with permanent lights. With reduced bleacher capacity and elimination of the restroom/ticket/concession building, the fire and police protection services demands would be slightly reduced compared to the proposed project. This alternative is environmentally superior to the proposed project.

7.8.8 Recreation

As with the proposed project, unauthorized use of both fields would be prohibited pursuant to the District's adopted field use policy. Therefore, this alternative would also require residents to use other existing parks and recreational facilities. Impacts to nearby recreational facilities would be similar to that of the proposed project. This alternative is environmentally similar to the proposed project.

7.8.9 Transportation and Traffic

Under this alternative, evening practices and events would occur, but the full-capacity event attendees would be reduced by approximately 33 percent, from 1,000 spectators to 664 spectators. No permanent bleachers would be provided on the lighted second field, therefore, the second field would be used primarily for practices. With the reduced capacity bleachers, transportation and traffic impacts would be reduced compared to the proposed project. Even without the project, five intersections would operate at LOS E or worse under opening year scenario, and only one intersection (Jamboree Rd & University Dr./Eastbluff Rd.) would result in an increase of 0.010 second change in delay to cause a significant impact. However, this increase would likely be reduced to a less than significant level under this alternative. Parking capacity impact would also be reduced under this alternative, although no significant impact has been identified under the proposed project. This alternative is environmentally superior to the proposed project.

7.8.10 Energy

Under this alternative, additional electricity would be consumed for the second field lighting system compared to the proposed project. However, no additional natural gas demands would be consumed. Like the proposed project, practices and events would take place on CdM campus, but events exceeding 664 spectators would continue to be played at other facilities, resulting in higher VMTs compared to the proposed project. Higher vehicle miles would also result in greater demands for transportation energy. Therefore, the overall energy demands under this alternative would be greater than the proposed project. This alternative is environmentally inferior to the proposed project.

7.8.11 Conclusion

This alternative would lessen environmental impacts in the areas of noise, public services, and transportation and traffic; have greater impacts in the areas of aesthetics, construction and operational air quality, cultural resources, GHG emissions, hydrology and water quality, recreation, and energy. Therefore, although this alternative would reduce significant and unavoidable noise impacts, overall, this alternative is environmentally inferior compared to the proposed project.

7.9 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires a lead agency to identify the "environmentally superior alternative" and, in cases where the "No Project" Alternative is environmentally superior to the proposed project, the environmentally superior development alternative must be identified. All three alternative has been identified as "environmentally superior" to the proposed project:

- No Project Alternative
- Community Plan Alternative 1: Two Fields with Reduced Capacity and No Lights
- Community Plan Alternative 2: Two Fields with Reduced Capacity and Portable Lights
- Community Plan Alternative 3: Permanent Lights on Two Fields with Reduced Capacity

The Community Plan Alternative 1: Two Fields with Reduced Capacity and No Lights has been identified as the environmentally superior alternative. This alternative would lessen significant event noise impacts and also reduce impacts associated with aesthetics, noise, public services, and transportation and traffic without requiring mitigation measures. Although it would have similar impacts in the areas of construction air quality, cultural resources, recreation, and energy and have greater impacts in the areas of operational air quality, GHG emission, and hydrology and water quality, elimination of the significant noise impact and elimination of traffic mitigation would warrant this alternative as the superior alternative. However, it would not achieve some of the project objectives and would not meet the project objectives to the degree achieved by the proposed project.

As stated in Section 7.1.2, the main objective of the project is to enhance on-campus facilities to reduce the number of events and practices that currently must travel off-campus and to provide lighting for night use of the facility. The Community Plan Alternative 1 would only allow day practices to occur on CdM campus, and students would continue to travel off-campus for evening practices and games. Therefore, these objectives would not be met. While this alternative would enhance opportunities for after-school athletic and extracurricular activities on the CdM campus, the opportunities would only be for daytime. Since football games usually occur during evening hours, students would continue to travel to off-site facilities, and the District would need to fund the off-site venues and travel expenses. The upgraded facilities would boost school pride and increase participation in athletics. Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts" (Guidelines Sec. 15126.6[c]). Because this alternative would not meet the most basic project objectives to allow nighttime practices and games to occur on CdM sports field, this alternative is not a preferred alternative to the proposed project.

8. Impacts Found Not to Be Significant

California Public Resources Code Section 21003 (f) states: "…it is the policy of the state that…[a]ll persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical, and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment." This policy is reflected in the State California Environmental Quality Act (CEQA) Guidelines (Guidelines) Section 15126.2(a), which states that "[a]n EIR [Environmental Impact Report] shall identify and focus on the significant environmental impacts of the proposed project" and Section 15143, which states that "[t]he EIR shall focus on the significant effects on the environment." The Guidelines allow use of an Initial Study to document project effects that are less than significant (Guidelines Section 15063[a]). Guidelines Section 15128 requires that an EIR contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant, and were therefore not discussed in detail in the Draft EIR.

8.1 ASSESSMENT IN THE INITIAL STUDY

The Recirculated Initial Study prepared for the proposed project in March 2016 determined that impacts listed below would be less than significant. Consequently, they have not been further analyzed in this Draft EIR (DEIR). Please refer to Appendix A2 for explanation of the basis of these conclusions. Impact categories and questions below are summarized directly from the CEQA Environmental Checklist, as contained in the Recirculated Initial Study.

Table 8-1 Impacts Found Not to Be Significant

Environmental Issues	Initial Study Determination
II. AGRICULTURE AND FOREST 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.
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	No Impact.
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.

8. Impacts Found Not to Be Significant

Table 8-1 Impacts Found Not to Be Significant

Environmental Issues		Initial Study Determination
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	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?	No Impact.
III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:		
e)	Create objectionable odors affecting a substantial number of people?	Less Than Significant.
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 Game or U.S. Fish and Wildlife Service?	No Impact.
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 Game or U.S. Fish and Wildlife Service?	No Impact.
c)	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	No Impact.
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.
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	No Impact.
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?	No Impact.
V. CULTURAL RESOURCES. Would the project:		
a)	Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	No Impact.
d)	Disturb any human remains, including those interred outside of formal cemeteries?	Less Than Significant.
e)	Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074?	Less Than Significant.
VI. GEOLOGY AND SOILS. Would the project:		
a)	Expose people or structures to 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.
	ii) Strong seismic ground shaking?	Less Than Significant.
	iii) Seismic-related ground failure, including liquefaction?	No Impact.
	iv) Landslides?	Less Than Significant.
b)	Result in substantial soil erosion or the loss of topsoil?	Less Than Significant.
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.

Table 8-1 Impacts Found Not to Be Significant

	Environmental Issues	Initial Study Determination
d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	Less Than Significant.
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.
VIII. 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.
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.
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.
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 for people residing or working in the project area?	Less Than Significant.
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	No Impact.
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Less Than Significant.
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	No Impact.
IX. HYDROLOGY AND WATER QUALITY. Would the project:		
a)	Violate any water quality standards or waste discharge requirements?	Less Than Significant.
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	Less Than Significant.
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in a substantial erosion or siltation on- or off-site	Less Than Significant.
f)	Otherwise substantially degrade water quality?	Less Than Significant.
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	No Impact.
h)	Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	Less Than Significant.
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	No Impact.
j)	Inundation by seiche, tsunami, or mudflow?	Less Than Significant.
X. LAND USE AND PLANNING. Would the project:		
a)	Physically divide an established community?	No Impact.
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	Less Than Significant.

8. Impacts Found Not to Be Significant

Table 8-1 Impacts Found Not to Be Significant

Environmental Issues		Initial Study Determination
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	No Impact.
XI. 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?	Less Than Significant.
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.
XII. NOISE. Would the project result in:		
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 expose people residing or working in the project area to excessive noise levels?	Less Than Significant.
f)	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	Less Than Significant.
XIII. POPULATION AND HOUSING. Would the project:		
a)	Induce substantial 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.
b)	Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	No Impact.
c)	Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	No Impact.
XIV. 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:		
c)	Schools?	No Impact.
e)	Other public facilities?	Less Than Significant.
XV. RECREATION.		
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.
XVI. TRANSPORTATION/TRAFFIC. Would the project:		
c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	Less Than Significant.
f)	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	Less Than Significant.

9. Significant Irreversible Changes Due to the Proposed Project

Section 15126.2(c) of the CEQA Guidelines requires that an Environmental Impact Report (EIR) describe any significant irreversible environmental changes that would be caused by the proposed project should it be implemented. In the case of the proposed project, implementation would involve:

- Construction activities that entail the commitment of nonrenewable and/or slowly renewable energy resources, including gasoline, diesel fuel, natural gas, electricity, human resources, and natural resources such as lumber and other forest products, sand and gravel, asphalt, steel, lead, other metals, and water.

- The energy commitment of nonrenewable and/or slowly renewable energy resources during long-term implementation.

- The long-term social and public services commitments.

9. Significant Irreversible Changes Due to the Proposed Project

This page intentionally left blank.

10. Growth-Inducing Impacts of the Proposed Project

Pursuant to Sections 15126(d) and 15126.2(d) of the CEQA Guidelines, this section is provided to examine ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Also required is an assessment of other projects that would foster other activities which could affect the environment, individually or cumulatively. To address this issue, potential growth-inducing effects will be examined through analysis of the following questions:

- Would this project remove obstacles to growth, e.g., through the construction or extension of major infrastructure facilities that do not presently exist in the project area, or through changes in existing regulations pertaining to land development?
- Would this project result in the need to expand one or more public services to maintain desired levels of service?
- Would this project encourage or facilitate economic effects that could result in other activities that could significantly affect the environment?
- Would approval of this project involve some precedent-setting action that could encourage and facilitate other activities that could significantly affect the environment?

Please note that growth-inducing effects are not to be construed as necessarily beneficial, detrimental, or of little significance to the environment. This issue is presented to provide additional information on ways in which this project could contribute to significant changes in the environment, beyond the direct consequences of developing the land use concept examined in the preceding sections of this EIR.

Would this project remove obstacles to growth, e.g., through the construction or extension of major infrastructure facilities that do not presently exist in the project area, or through changes in existing regulations pertaining to land development?

Project implementation would not extend major infrastructure to places currently unserved by such facilities. The project site is already developed as a high school in a residential neighborhood served by infrastructure such as water and sewer mains and electricity and natural gas services. The proposed project would not change the underlying land use of the project site and would not change the existing regulations pertaining to land development.

10. Growth-Inducing Impacts of the Proposed Project

Would this project result in the need to expand one or more public services to maintain desired levels of service?

The proposed project would serve the existing CdM campus athletic programs and would not increase total campus enrollment or capacity in the District. The proposed project would require expansion of facilities and personnel for fire protection services to maintain desired levels of service. Although demands for police services could increase during a maximum-capacity event, such a large crowd event is anticipated to occur less than 10 times a year, and volunteer police services (e.g., police explorers) would be employed if necessary. Therefore, no expanded police services would be required to maintain desired levels of service. The proposed project would not result in a growth-inducing impacts related to public services.

Would this project encourage or facilitate economic effects that could result in other activities that could significantly affect the environment?

Construction would generate short-term employment. However, considering the size and scale of the proposed project, it would not encourage or facilitate economic effects that could result in other activities that could affect the environment. It is anticipated that construction employment could be absorbed from the regional labor force and would not attract new workers into the city permanently. Operation of the proposed project would not increase total employment at the CdM campus since it would accommodate the existing school programs. The proposed project would not result in growth inducing impacts in this regard.

Would approval of this project involve some precedent-setting action that could encourage and facilitate other activities that could significantly affect the environment?

The proposed project involves improvements to an existing sports field at an existing school campus, and there is no precedent-setting action that could encourage and/or facilitate other activities that could significantly affect the environment. No growth-inducing impact would occur in this regard.

11. Organizations and Persons Consulted

Newport-Mesa Unified School District

Ara Zareczny, Director, Facilities Development, Planning and Design

LPA

Arash Izadi, RLA/ASLA/LEED AP BD+C, Associate/Director of Sport and Recreation

Steve Key, Architect/LEED AP BD+C, Project Manager

Jane Theobald, PLA/ASLA, Design Coordinator/Landscape

11. Organizations and Persons Consulted

This page intentionally left blank.

12. Qualifications of Persons Preparing EIR

PLACEWORKS

Dwayne Mears, AICP
Principal, Environmental Services and School Facilities Planning

- BS California Polytechnic State University, San Luis Obispo, City and Regional Planning, 1978
- MRP, University of North Carolina, Chapel Hill, City and Regional Planning, 1980

Elizabeth Kim
Associate

- BS, University of California, Irvine, Environmental Analysis and Design, 1998
- MURP, University of California, Irvine, 2001

Nicole Vermilion
Associate Principal, Air Quality & GHG

- Master of Urban and Regional Planning, University of California, Irvine
- BA, Environmental Studies, and BS, Ecology and Evolutionary Biology, University of California, Santa Cruz

Bob Mantey
Senior Engineer, Noise, Vibration & Acoustics

- BS, Engineering, Harvey Mudd College

Cathy Fitzgerald
Senior Engineer

- BA, Biology, University of California, Los Angeles
- MA, Marine Biology, University of California, Santa Barbara
- DEnv, Environmental Science & Engineering, University of California, Los Angeles

Cameron Sullivan
Scientist, Noise

- BS, Acoustics, Columbia College Chicago

12. Qualifications of Persons Preparing EIR

Alex Reyes Design Intern	▪ BS, Landscape Architecture, Cal Poly Pomona
Cary Nakama Graphic Designer	▪ BA, Data Processing and Marketing, California State University, Long Beach ▪ AA, Computer Graphic Design, Platt College of Computer Graphic Design

IBI GROUP

Bill Delo, AICP Managing Principal - Irvine	▪ BA, Environmental Analysis and Design, University of California, Irvine
Michael Arizabal Senior Transportation Planner	▪ BS, Civil Engineering, University of California, Irvine