



Draft Program **Environmental Impact Report**

State Clearinghouse No. 2011071005



Prepared for:

**South Orange County
Community College
District**

28000 Marguerite Parkway
Mission Viejo, CA 92692

APRIL 2012

**2011 FACILITIES MASTER PLAN
Irvine Valley College**

**2011 FACILITIES MASTER PLAN
Saddleback College**

Prepared by:

ERGP

IVC
SC

South Orange County Community College District

**2011 Facilities Master Plans for
Saddleback College & Irvine Valley College**

Draft Program Environmental Impact Report

State Clearinghouse No. 2011071005



Prepared for:

**South Orange County Community College District
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Mission Viejo, CA 92692**

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APPENDICES

The following technical appendices are provided in Adobe Acrobat Portable Document File (PDF) format on the CD at the back of the Draft EIR. Hard copy appendices are also available for review at South Orange County Community College District, 28000 Marguerite Parkway, Mission Viejo, CA 92692.

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EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This Executive Summary has been prepared in accordance with the CEQA Guidelines §15123(b) which states that an EIR should contain a brief summary of the proposed actions and its consequences, and should identify:

- “Each significant effect with proposed mitigation measures and alternatives that would reduce or avoid that effect;
- Areas of controversy known to the lead agency including issues raised by the agencies and the public; and
- Issues to be resolved including the choice among alternatives and how to mitigate the significant effects.”

This draft Program Environmental Impact Report (Program EIR) identifies and evaluates the potential environmental impacts associated with implementation of the 2011 Facilities Master Plans¹ (FMPs) for the Saddleback College campus, the Irvine Valley College (IVC) campus, and the Advanced Technology & Education Park (ATEP) by the South Orange County Community College District (SOCCCD or “District”). The 2011 FMPs for Saddleback College and Irvine Valley College/ATEP² describe the needed buildings, infrastructure, vehicular and pedestrian circulation improvements, and proposed sequencing schedules required for construction and operation of instructional and support facilities through the year 2031. The 2011 FMPs take into account any significant changes to the colleges (e.g., enrollment, academic priorities, age and condition of facilities) and external conditions (e.g., student and community expectations, technology, state of the economy) since publication of the 2006 Facilities Master Plan. The 2011 FMPs will replace the 2006 FMP.

The ATEP chapter of the 2011 FMP for IVC reflects recent and ongoing programming efforts within the framework of previously approved plans for the ATEP academic satellite. As discussed in Chapter 4.0 (*ATEP Analysis*) of this EIR, the approved 2008 ATEP Long Range Academic and Facilities Plan (LRP) and Long Range Academic Plan (LRAP), and the subsequent 2009 Phase 3A Concept Plan, all serve as the functional equivalent of an FMP. Thus, the 2011 FMP provides only a limited status overview of existing and planned facilities at the ATEP campus; it does not contain changes to the analyzed and approved ATEP development plans.

The ATEP campus has been a subject of numerous CEQA documents and site-specific environmental studies leading up to and since conveyance of the ATEP property from the U.S. Department of the Navy to the City of Tustin, and ultimately to SOCCCD. Chapter 4.0 (*ATEP Analysis*) of this EIR describes the planning documents, environmental compliance programs, and agency oversight under which development of the ATEP campus will occur. Those approved plans and certified environmental documents for ATEP are separate from, and are not incorporated or readdressed in, the 2011 FMPs or this program EIR.

¹ Available for review at http://www.socccd.edu/about/about_planning.html

² SOCCCD has offered courses at the ATEP site since 2007. Saddleback College and IVC personnel develop curricula for courses offered at the ATEP location under the following program categories: Allied Health, Applied Technologies, Media Technologies and Green Technologies. The Saddleback and IVC Education and Facilities Master Plans both contain enrollment projections and facilities plans for ATEP. During development of the ATEP campus, IVC will coordinate the management and operational aspects of the ATEP facility.

ES.2 PROJECT SUMMARY

ES.2.1 Project Locations

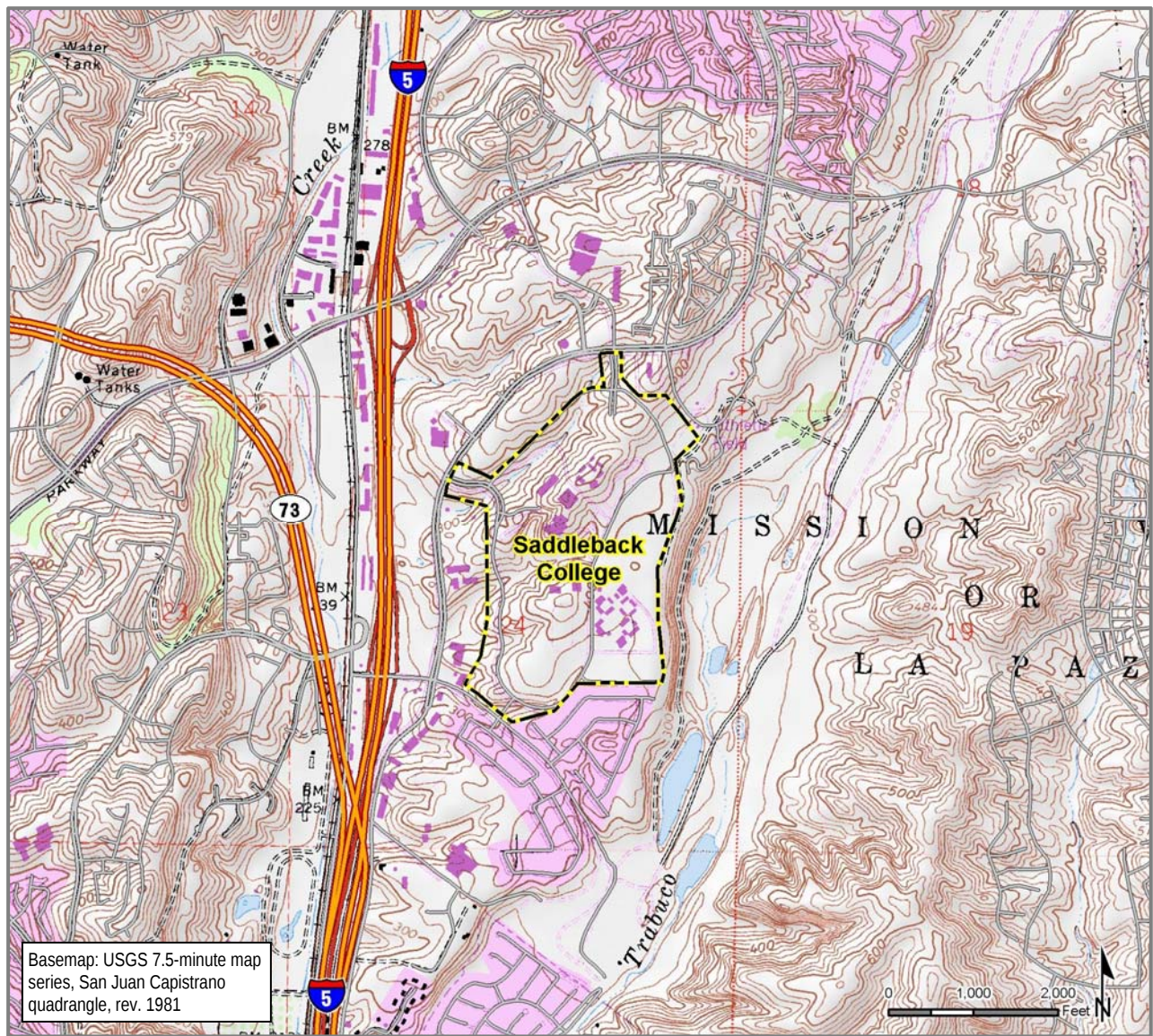
The SOCCCD college campus locations are each shown on Figure 1 (Regional Location) and in the following sections. Complete descriptions of the local settings and existing campus facilities are provided in Chapter 3.0 (*Project Description*).



**FIGURE ES-1
REGIONAL LOCATION**

Saddleback College

The approximately 173-acre Saddleback College campus is located at 28000 Marguerite Parkway, at the northeast corner of Marguerite and Avery Parkways, in the City of Mission Viejo. The campus is in Section 24 of Township 7 South, Range 8 West, San Bernardino Baseline and Meridian (SBBM), as depicted on the U.S. Geological Survey (USGS) San Juan Capistrano, California (1981) 7.5-minute topographic quadrangle (Figure 2).



Campus coordinates: Latitude 33°33'08" North, Longitude 117°39'39" West

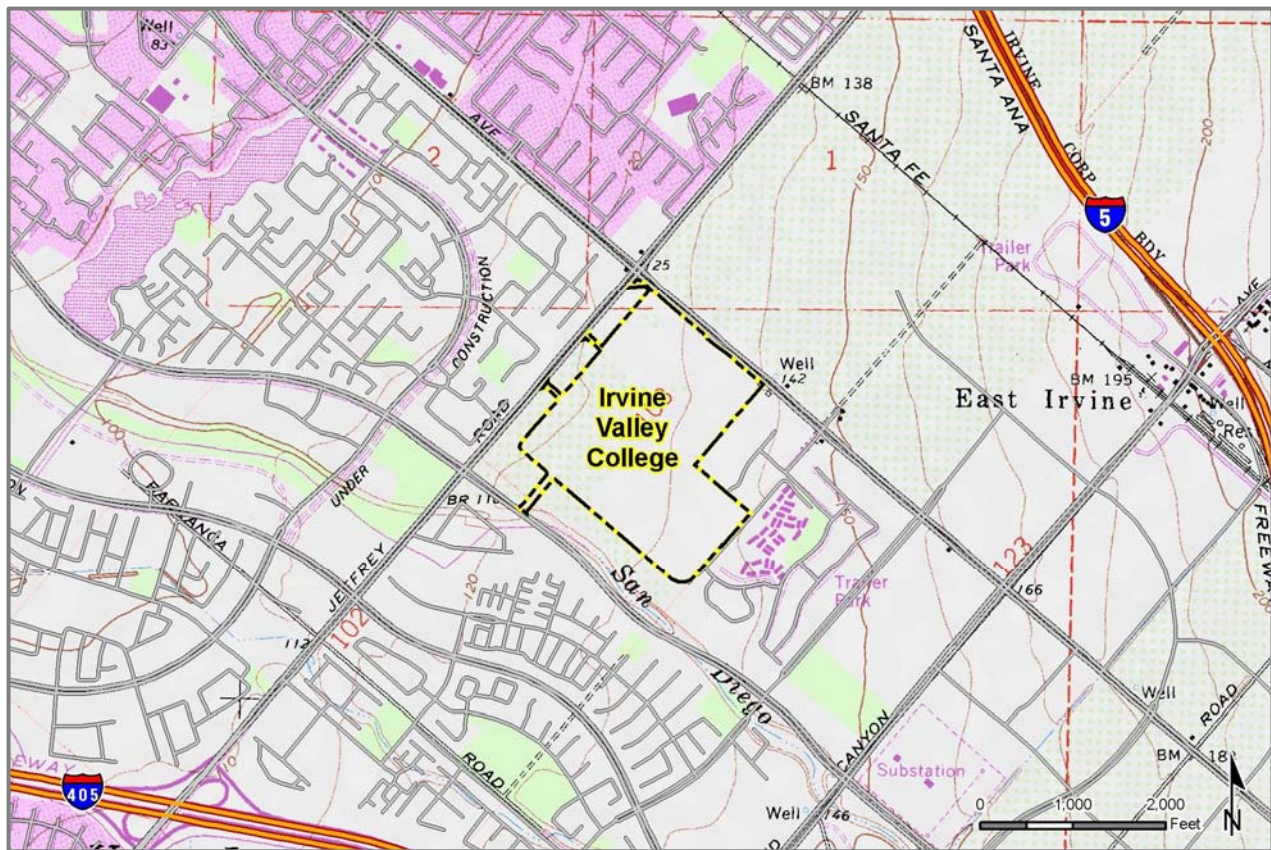
FIGURE ES-2
USGS MAP – SADDLEBACK COLLEGE

Irvine Valley College

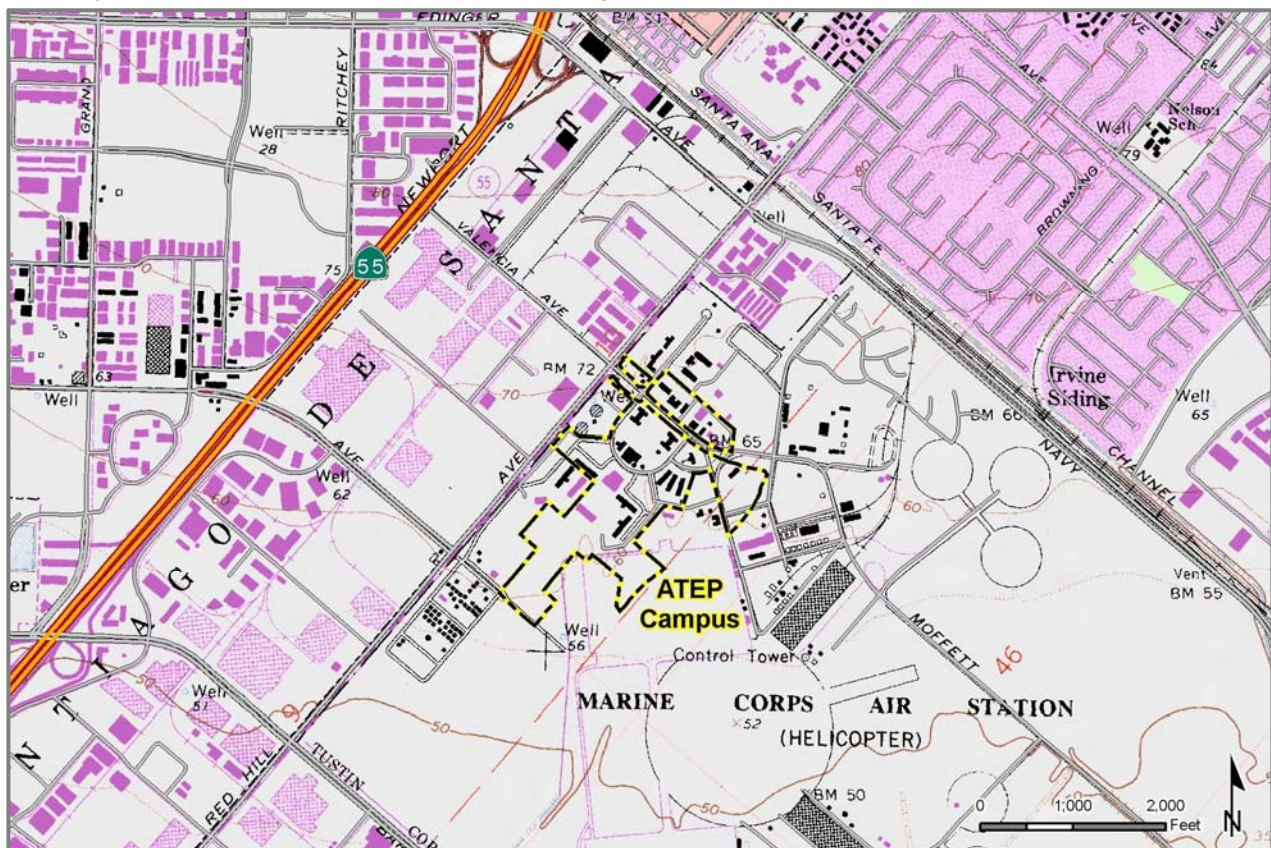
The 100-acre Irvine Valley College campus is located at 5500 Irvine Valley Drive, at the southeast corner of Irvine Center Drive and Jeffrey Road, in the City of Irvine. The campus is partially in and south of Section 1 of Township 6 South, Range 9 West, SBBM, as depicted on the USGS Tustin, California (1981) 7.5-minute topographic quadrangle (Figure 3).

Advanced Technology & Education Park

The 68-acre ATEP campus is located at 15445 Lansdowne Road, east of the intersection of Red Hill Avenue and Valencia Avenue within the Tustin Legacy development (former Marine Corps Air Station Tustin) in the City of Tustin. The campus is in an unsectioned portion of Township 5 South, Range 9 West, SBBM, as also depicted on the Tustin 7.5-minute topographic quadrangle (Figure 3).



IVC Campus coordinates: 33°40'34" North Latitude, 117°46' 26" West Longitude



ATEP coordinates: 33°42'55" North Lat., 117°49' 43" West Long.
Source: USGS 7.5-minute map series, Tustin quadrangle, rev. 1981

FIGURE ES-3: USGS MAP – IVC AND ATEP CAMPUSES

ES.2.2 Project Purpose and Objectives

A college 'Master Plan' is a comprehensive planning document encompassing all functions of a college or district. At present, the 2006 FMP is the approved document that describes the instructional and support facilities needed to accommodate projected student enrollment through the year 2020 at the District's three campuses. The three campuses include Saddleback College in the city of Mission Viejo, IVC in the city of Irvine, and ATEP in the city of Tustin.

The 2011 Saddleback College and Irvine Valley College FMPs describe the needed buildings, infrastructure, vehicular and pedestrian circulation improvements, and proposed sequencing schedules required for construction and operation of instructional and support facilities through the year 2031. The FMP site planning concepts are products of input by public decision-makers, administrators, faculty, students and staff, and uphold the goals of the Educational Master Plans for each campus.

ES.2.3 Project Description Summary

The 2011 FMPs evaluate existing land, infrastructure, facilities and systems in relationship to the District's educational purposes, plans and needs, specifying the capital outlay projects necessary to meet these needs. Some overall objectives include providing safe facilities and activating existing space, increasing instructional capacity, modernizing instructional space, promote a completed campus concept, increasing institutional support services capacity, and modernizing institutional support services space. As such, the 2011 FMPs establish design principles and guidelines that will become the road map for creating modern, safe and environmentally-responsible campuses. Design principles cover building heights, lighting, public space usage, campus safety and accessibility, and site signage. The guidelines provide recommendations for the campus site layout, buildings, landscaping and hardscape scheme. Campus "sustainability" will be achieved through the use of LEED (Leadership in Energy and Environmental Design) technical guidelines in site selection, water conservation and management, energy efficiency, conservation of materials and resources, and indoor environmental quality. Those sustainable design and environmental sensitivity reference standards will be implemented immediately in new construction, and will serve as criteria that evolve as code compliance changes and technology advances.

Projects in the 2011 FMPs include new buildings, renovated/modernized existing buildings, and site improvements (e.g., roadways, pedestrian paths, parking facilities, etc.). The project design evolution is reflected in the sequencing of FMP projects in 5-, 10- and 20-year planning horizons, within which projects are prioritized and designed based on criteria such as existing building and infrastructure conditions, pedestrian and vehicular circulation, utility capacities, code compliance, and energy consumption. The 2011 FMPs also provide extensive guidance with regard to water and energy efficiency technologies and conservation practices; construction/demolition (C&D) and solid waste recycling; renewable energy standards; stormwater pollutant reduction; and overall sustainable design and building practices.

Some buildings are currently undergoing renovation and modernization, while others are planned for minor to major upgrades in order to address specific structural and safety issues; provide functional improvements; upgrade infrastructure; and bring buildings up to current code standards. The full scope of new and renovated buildings and other site improvement projects (i.e., utilities, roadways, pedestrian facilities, etc.) are best reviewed in the 2011 FMPs in their graphical and planning contexts, and with construction details and secondary effects (i.e., relocations, minor repairs, finish replacement) descriptions. Please refer to the 2011 FMPs available online at http://www.socccd.edu/about/about_planning.html.

Table ES-2 on the following page provides a statistical summary of existing and proposed building space and anticipated student enrollments at each of the SOCCCD campuses. Figures ES-4 and ES-5 illustrate the 2031 campus plans for Saddleback College and Irvine Valley College, respectively.

ES.3 REQUIRED APPROVALS

This program EIR will serve as the CEQA compliance documentation for the South Orange County Community College District (the lead agency), as well as any State or local agencies with discretionary decisions associated with the Proposed Project. These agencies may include, but are not limited to, the agencies listed below.

TABLE ES-1
STATE AND LOCAL AGENCY PERMITTING ACTIONS OR APPROVALS

Agency	Permitting Actions or Approvals
South Orange County Community College District (Lead Agency)	• Certification of a Final Program EIR and other CEQA related actions and approvals • Approval of Design/Build contracts
California Department of General Services, Division of the State Architect	• Approval of architectural plans
California Department of Fish and Game	• To be determined based on Saddleback Loop Road jurisdictional determination and permit requirements
California Regional Water Quality Control Board	• To be determined based on Saddleback Loop Road jurisdictional determination and permit requirements
Cities of Irvine and Mission Viejo	• City of Mission Viejo slope easement (Saddleback Loop Road project) • Encroachment permits for public infrastructure improvements
City of Tustin	• Grading, Site Design and Development review per the conveyance agreement for the ATEP campus • Encroachment permits for public infrastructure improvements
Orange County Flood Control District	• Encroachment permit for any work within or adjacent to a Flood Control District right-of-way (Saddleback Loop Road project)
U.S. Army Corps of Engineers	• To be determined based on Saddleback Loop Road jurisdictional determination and permit requirements
U.S. Fish and Wildlife Service	• To be determined based on Saddleback Loop Road permit requirements

TABLE ES-2
SUMMARY OF CAMPUS GROWTH PROJECTIONS

Campus	Acreage ¹	Existing (2011)			Proposed (2011 FMPs)		
		Building ² Space	Parking Spaces / Lots	FTES	Building ² Space	Parking Spaces / Lots	FTES
Saddleback College	173	614,510 GSF permanent 84,546 GSF portables	4,436 spaces / 17 paved surface lots	6,971	838,510 GSF permanent; some of the 84,546 GSF of existing portables will be removed from the campus in phases through 2031	New spaces: 1,500-space parking structure; 960-space surface lot Lost due to new projects: 670 spaces Net total parking: 6,226 spaces	13,081
Irvine Valley College	100	400,000 GSF permanent 15,000 GSF portables	2,262 spaces / 8 paved surface lots; 150 in unpaved extra lot	4,001	556,440 GSF permanent; 15,000 GSF portables to remain in use as needed through 2031	New spaces: 800-space parking structure; 835 spaces in two (2) new surface lots Lost due to new projects: 192 spaces Net total parking: 3,705 spaces, not including 150 spaces on an existing gravel lot	7,511

GSF = Gross Square Feet (the total enclosed area of the building)

FTES = Full-Time Equivalent Students

¹ Acreage changes from existing are neither planned in the 2006 FMP, nor proposed in the 2011 FMPs.

² Includes academic, student service and support building space.

2011-2016 PLANNING HORIZON

- 101. New Sciences Building and Utilities Service
- 102. Renovate Technology and Applied Sciences Building
- 112. New Loop Road Alignment, Sitework and Infrastructure
- 103. New Gateway Building
- 125. Renovate Gateway Building/Transit Entrance Plaza
- 126. Renovate Quad Landscape/Hardscape

2016-2021 PLANNING HORIZON

- 104. Renovate Student Services Center Building
- 114. Renovate Fine Arts Building
- 105. Renovate Science Math Building and Science Math Plaza
- 106. Renovate Science Math Plaza
- 124. Renovate Health Sciences Building
- 117. Renovate Athletics Stadium

2021-2031 PLANNING HORIZON

- 109. New Lifetime Fitness and Wellness Center
- 110. Renovate PE-100, PE-200, PE-300, PE-400, PE-500 and PE-600 Buildings
- 111. Renovate PE Plaza
- 121. Renovate Central Plant
- 107. New Parking Structure Phase I
- 120. Renovate Marguerite Parkway Entrance
- 127. Renovate Campus Pedestrian Pathways
- 128. Renovate College Entrances: College Drive; Marguerite Parkway; Avery Parkway
- 113. Renovate Library Drive: Pedestrian Improvement
- 115. Renovate East Campus Drive: Pedestrian Promenade
- 123. New Athletics Plaza
- 118. New Campus Warehouse, Maintenance Shops & Yards
- 131. Renovate Child Care Center (CDC) Building
- 132. New Horticulture Restrooms
- 133. New Central Plant and Power Generation Facility
- 108. New Fine Arts – Cinema/Radio/TV Building
- 130. Renovate Fine Arts Plaza
- 135. New Baseball Restrooms/Bleachers/Concessions
- 136. New Softball Restrooms/Bleachers
- 107. New Parking Structure Phase II (750 Spaces)
- 122. New Surface Parking Lot
- 137. Renovate Business General Studies (BGS) Building

**FIGURE ES-4: 2031 CAMPUS PLAN – SADDLEBACK COLLEGE PROJECTS**

2011-2016 PLANNING HORIZON

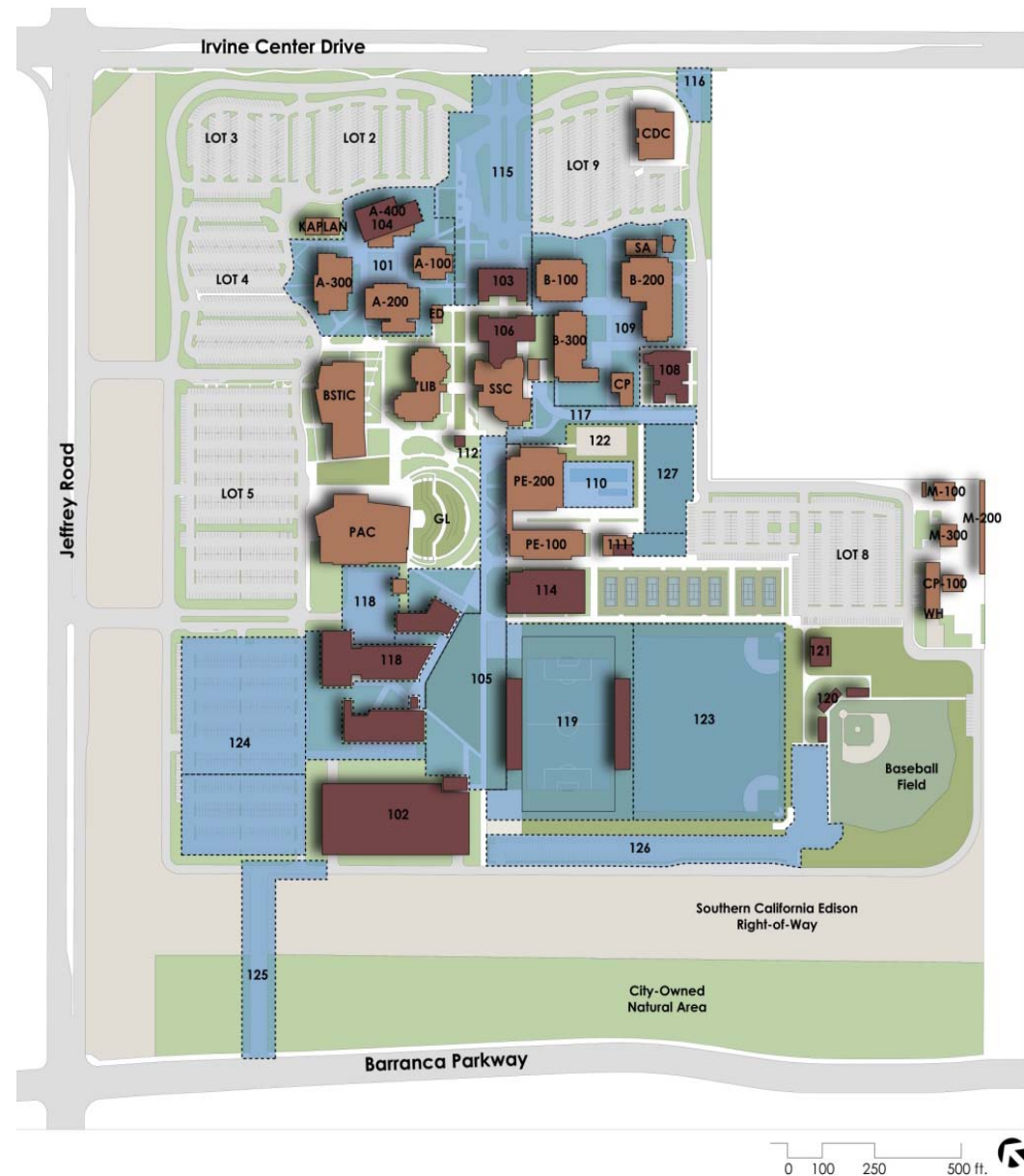
- 108. New Life Sciences Building
- 125. New Barranca Parkway Campus Entrance /Exit Drive
- 104. Renovate A-400: H&L/SBS/Co-curricular Center
- A200. Renovate A-200: Success Center
(Writing Lab, World Language/ESL, Reading/Tutoring)
- B300. Renovate B-300 Second Floor: Math/Computer Science
- 124. New Surface Parking Lot (Phase I – 400 Spaces)
- 101. New Fine Arts Complex
- B300. New Fine Arts Site Work/Renovate Performing Arts Yard

2016-2021 PLANNING HORIZON

- 123. Renovate Soccer and Practice Fields
- 124. New Surface Parking Lot (Phase II - 250 spaces)
- 101. Renovate A-Quad Landscape/Hardscape
B300 Renovate B-300 First Floor
- 105. New Fine Arts Promenade Landscape/Hardscape
- 115. Renovate Campus Entrance Plaza
- 120/121. New Baseball Restrooms / Bleachers / Concessions
- 112. New Clock Tower
- 114. New Auxiliary Gymnasium

2021-2031 PLANNING HORIZON

- B100. Renovate B-100: New Bookstore/Conferencing Center
- 109. Renovate B-Quad Landscape/Hardscape
- 116. New Irvine Center Drive Campus Entrance/Exit Drive
- 126. New Parking Lot
- 127. New Outdoor Lab / BEES Garden Expansion
- 106. New Student Services Center Expansion Annex
- SSC. Renovate Student Services Center (SSC) Building
- 117. Renovate Service Road: Pedestrian Improvement
- 122. New Sand Volleyball Courts
- 119. New Athletics Stadium
- 103. New Humanities & Languages / Social Behavioral Sciences Building
- 102. New Parking Structure
- 110. New Swimming Pools / Enclosure

**FIGURE ES-5: 2031 CAMPUS PLAN – IRVINE VALLEY COLLEGE PROJECTS**

ES.4 SUMMARY OF PROJECT ALTERNATIVES

State CEQA Guidelines §15126.6 requires that the EIR analyze a reasonable range of alternatives that could feasibly attain the basic objectives of the Proposed Project, while also reducing or avoiding potentially significant impacts. Chapter 5.0 (*Project Alternatives*) evaluates the comparative merits of the following alternatives:

- No Project, Option 1 - Implementation of the Approved 2006 FMPs
- No Project, Option 2 - Implementation of Projects In Progress
- Alternative 1 - All Proposed Development Moved to Irvine Valley College Campus
- Alternative 2 - Preservation of Agriculture on Irvine Valley College Campus

The following alternatives were initially considered in addition to those listed above, but were eliminated from detailed consideration for failing to meet most of the project objectives, infeasibility, or not avoiding or substantially reducing any significant environmental effects:

- Development of a Fourth SOCCCD Campus
- Cap Enrollments and Limit District-wide Growth to ATEP Campus
- Cap IVC Enrollment and Limit Growth to Saddleback College Campus
- No Project/No Development

Since the 2011 FMPs apply to long-established college campuses, Alternative Locations are infeasible and are not considered. However, as noted above, development of a fourth SOCCCD campus was initially considered but eliminated from detailed consideration for reasons of infeasibility.

Based on the analysis provided in Table 5-4, Alternative 2 (Preservation of Agriculture at Irvine Valley College) is determined to be the Environmentally Superior Alternative. This alternative would eliminate the significant and unavoidable impact resulting from the loss of Prime Farmland on the IVC campus, and would also marginally reduce impacts (which are already below a level of significance) related to cultural resources and hydrology and water quality. It is noted that this alternative would marginally increase impacts related to air quality, greenhouse gas emissions, and water use at the IVC campus.

ES.5 AREAS OF CONTROVERSY/ISSUES TO BE RESOLVED

The District issued a Notice of Preparation (NOP)/Initial Study for the Proposed Project on July 1, 2011 with a 30-day public review period that ended on July 31, 2011. The District received 12 comment letters from public agencies and two comment letters from private entities. These comments are summarized in Table ES-3, along with the location in the EIR where analyses conducted in relation to the comments is provided. The NOP and comment letters are included in Appendix A.

The NOP provided public notice of a scoping meeting (held on July 21, 2011) to receive oral and written comments on the scope and content of the draft program EIR. No interested parties were in attendance, and no comments were received at the meeting.

TABLE ES-3
SUMMARY OF NOP/INITIAL STUDY COMMENTS

Commenter	Summary of Comment Topic	Location of Response
<i>Public Agencies</i>		
California Department of Toxic Substances Control	- EIR should consider project threats to human health or the environment. - EIR should identify mechanism to initiate investigation and/or remediation for contaminated buildings and soils. - Where demolition is proposed, investigations should occur to determine the presence of hazardous chemicals, mercury, asbestos-containing materials, or lead-based paints. Remediation should occur if any of these substances are found. - Sampling to determine soil contamination may be required during project construction. - Sensitive receptors should be protected during construction and demolition activities. - Hazardous wastes must be handled in accordance with applicable regulations.	Section 3.7 (<i>Hazards & Hazardous Materials</i>)
California Department of Transportation	<i>No comments applicable to EIR.</i>	Not applicable.
City of Irvine	- Information is provided relative to requirements for traffic projections, pedestrian accessibility, parking issues, and traffic operations. - Address runoff and the loss of perviousness resulting from development on agricultural fields.	Section 3.2 (<i>Traffic</i>) Section 3.6 (<i>Hydrology & Water Quality</i>)
City of Laguna Niguel	- Information is provided relative to the Laguna Niguel Gateway Specific Plan. - Information is provided relative to traffic impacts, and a list of intersections and street segments for use in the traffic analysis is provided.	Section 3.2 (<i>Traffic</i>)
City of Mission Viejo	Information is provided relative to the traffic impact analysis.	Section 3.2 (<i>Traffic</i>)
City of San Juan Capistrano	Information is provided relative to the traffic impact analysis.	Section 3.2 (<i>Traffic</i>)
City of Tustin	Clarifications are provided relative the MCAS Tustin Specific Plan and its relationship with the ATEP campus.	Chapter 4 (<i>ATEP Analysis</i>)
Moulton Niguel Water District	<i>No comments applicable to EIR.</i>	Not applicable.
Native American Heritage Commission	No American Indian resources have been identified within ½ mile of the campuses.	Section 3.9 (<i>Cultural & Paleontological Resources</i>)

Commenter	Summary of Comment Topic	Location of Response
Orange County Public Works	- EIR should identify local drainage systems and watercourses, and assess impacts to such facilities. - Evaluate increased runoff resulting from loss of pervious areas, including hydrologic, hydraulic, and sediment transport analyses. - Identify floodplains and recommend methods to protect from flooding, erosion, and scour. - Evaluate water quality impacts.	Section 3.6 (<i>Hydrology & Water Quality</i>)
Orange County Transportation Authority	- Bus service must be preserved to the IVC auto court. - Address on- and off-road bicycle and pedestrian facilities.	Section 3.2 (<i>Traffic</i>)
South Coast Air Quality Management District	Assess air quality impacts from demolition, construction, and operations. Use localized significance thresholds.	Section 3.3 (<i>Air Quality</i>) Section 3.4 (<i>Greenhouse Gas Emissions</i>)
<i>Other Commenters</i>		
Rancho Mission Viejo	- Consider impacts to air quality, noise, and circulation. - Consider traffic congestion near Saddleback College and consistency with regional transportation plans. - Consider alternative transportation systems.	Section 3.2 (<i>Traffic</i>) Section 3.3 (<i>Air Quality</i>)
Southern California Gas Company	<i>No comments applicable to EIR.</i>	Not applicable.

ES.6 SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Table ES-4 summarizes the environmental topics with potentially significant adverse impacts, the recommended mitigation measures to reduce impacts to below a level of significance, and the level of significance remaining after mitigation. Environmental effects found to be less than significant are discussed in the Initial Study in Appendix A.

TABLE ES-4
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES

Potential Impacts	Mitigation Measures	Level of Significance After Mitigation
3.2 TRAFFIC AND CIRCULATION		
The following intersections will be significantly impacted by project traffic during PM peak hours at buildout of the Saddleback College campus (2030): • Marguerite Parkway at Crown Valley Parkway • Marguerite Parkway at Avery Parkway Saddleback College long-term growth will contribute to these intersections, which are forecast to operate at unacceptable levels without the Proposed Project.	Mitigation Measure TRA-1: The South Orange County Community College District shall coordinate with the City of Mission Viejo, the Orange County Transportation Authority, and the California Department of Transportation in the identification, planning and fair-share funding of intersection improvements at Marguerite Parkway and Avery Parkway. The district shall participate in a fair-share funding program that would ensure improvement of the Marguerite/Avery intersection to a minimum Level of Service D by the year 2030. If feasible improvements are identified for the intersection of Marguerite Parkway with Crown Valley Parkway, the district shall likewise participate in a fair-share funding program that would ensure improvement of the Marguerite/Crown Valley intersection to a minimum Level of Service E by the year 2030.	If feasible intersection improvements are identified for the two significantly impacted intersections and implemented by 2030, the district's participation in fair-share funding programs will mitigate the Project's incremental traffic effects to below a level of significance. However, if intersection improvements cannot be assured by 2030, when Saddleback College will be fully developed, the cumulative traffic impacts and the Project's contribution thereto will remain significant.
3.3 AIR QUALITY		
Construction activities could exceed the localized significance threshold value for PM_{2.5} and the maximum daily construction emissions for NO_x.	Mitigation Measure AQ-1: The following measures shall be incorporated into project plans and specifications as implementation of Rule 403: • All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 25 mph per SCAQMD guidelines in order to limit fugitive dust emissions. • The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the Project are watered at least three times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the mid-morning, afternoon, and after work is done for the day. • The contractor shall ensure that traffic speeds on unpaved roads and Project site areas are reduced to 15 miles per hour or less to	Less than significant with mitigation incorporated and no cumulative impacts.

Potential Impacts	Mitigation Measures	Level of Significance After Mitigation
	reduce PM10 and PM2.5 fugitive dust haul road emissions by approximately 44%. Mitigation Measure AQ-2: The California Air Resources Board, in Title 13, Chapter 10, Section 2485, Division 3 of the of the California Code of Regulations, imposes a requirement that heavy duty trucks accessing the site shall not idle for greater than five minutes at any location. This measure is intended to apply to construction traffic. Prior to issuance of a grading permit, the grading plans shall reference that a sign shall be posted on-site stating that construction workers need to shut off engines after five minutes of idling. Mitigation Measure AQ-3: Grading plans, construction specifications and bid documents shall include notation that all Rubber Tired Dozers and Scrapers shall be CARB Tier 2 Certified or better. The South Orange County Community College District shall review grading plans, construction specifications, and bid documents for conformance with this mitigation measure prior to approval of grading plans and issuance of grading permits. Mitigation Measure AQ-4: In order to reduce localized Project impacts to sensitive receptors in the Project vicinity during construction, construction equipment staging areas shall be located at least 300 feet away from sensitive receptors.	
3.5 NOISE		
Construction-period noise disturbances may impact nearby sensitive receptors.	Mitigation Measure NOI-1: All equipment shall be equipped with properly operating and maintained mufflers. Mitigation Measure NOI-2: Equipment and materials shall be staged in areas that will create the greatest distance between construction-related noise sources and the noise-sensitive receptors nearest the constructions sites. Mitigation Measure NOI-3: Haul trucks and other construction-related trucks traveling to and from any individual project site shall be restricted to the same hours specified for the operation of construction equipment. To the extent feasible, haul routes shall not pass directly by sensitive land uses.	Less than significant with mitigation incorporated and no cumulative impacts.

Potential Impacts	Mitigation Measures	Level of Significance After Mitigation
3.7 HAZARDS & HAZARDOUS MATERIALS		
Hazardous materials, such as lead-based paint, organochlorine pesticides, agricultural pesticides and fertilizers, and asbestos-containing materials, may pose a risk to human health on the campuses and at nearby sensitive receptors.	Mitigation Measure HAZ-1: Prior to structural demolition, whether full or partial, the SOCCCD shall evaluate the potential presence of lead-based paint and organochlorine pesticides. In so doing, the SOCCCD will comply with DTSC's "Interim Guidance, Evaluation of School Sites with Potential Soil Contamination as a Result of Lead From Lead-Based Paint, Organochlorine Pesticides from Termiticides, and Polychlorinated Biphenyls from Electrical Transformers," dated June 9, 2006. Mitigation Measure HAZ-2: Prior to development on, or use of soils from, areas of the campuses historically used for agricultural purposes, the SOCCCD shall evaluate the potential presence of toxic substances resulting from application of pesticides and/or fertilizers. In so doing, the SOCCCD will comply with DTSC recommendations for investigation and mitigation as provided in the "Interim Guidance for Sampling Agricultural Soils (Second Revision)," dated August 2002. This Guidance shall be followed for sampling agricultural properties where development is anticipated. Mitigation Measure HAZ-3: Prior to structural demolition, whether full or partial, of any structure constructed before 1979, the SOCCCD shall evaluate the potential presence of asbestos-containing materials (ACMs). If ACMs are determined to be present, such materials shall be abated in compliance with SCAQMD Rule 1403 and other applicable State and federal rules and regulations.	Less than significant with mitigation incorporated and no cumulative impacts.
3.8 BIOLOGICAL RESOURCES		
Construction activities that result in the removal of vegetation could impact actively nesting birds, including the nests of special-status species.	Mitigation Measure BIO-1: Prior to land-clearing activities from February 1 through August 31, a qualified biologist shall first evaluate the type and extent of vegetation removal. As determined necessary, the biologist shall conduct a nesting survey to identify any direct or indirect impacts to actively nesting birds. If direct or indirect impacts are identified, the biologist shall specify the appropriate mitigation measure(s) for these impacts. Such measures may include avoidance of occupied nests, working outside an established buffer area, modified scheduling of grading and clearing, and monitoring of active nests during construction.	Less than significant with mitigation incorporated and no cumulative impacts.

Potential Impacts	Mitigation Measures	Level of Significance After Mitigation
3.9 CULTURAL & PALEONTOLOGICAL RESOURCES		
Excavations exceeding five feet in depth may encounter significant vertebrate fossil material.	Mitigation Measure PR-1: Prior to any excavation or grading, the district shall compare the limits of proposed excavations with the depth and lateral extent of existing sub-surface disturbances, including foundations, utility and fill materials. The district shall determine the extent of sub-surface disturbances by using information including, but not limited to, as-built construction plans, underground utility surveys, and/or historic or recent geotechnical information, including boring and trenching logs. Mitigation Measure PR-2: Should resources be uncovered as a result of campus grading and/or excavation shallower than five feet, a qualified paleontologist shall be retained and notified, and work in the area of the find shall cease until a paleontological monitor under the supervision of the qualified paleontologist arrives. The paleontological monitor shall have the authority to halt or divert any activities adversely impacting potentially significant paleontological resources, and those resources must be recovered, analyzed, and curated with the Natural History Museum of Los Angeles County. Mitigation Measure PR-3: Based on information obtained from compliance with Mitigation Measure PR-1, and should excavations exceed five feet in depth, a qualified paleontologist shall be retained to conduct additional paleontological assessment using pre-construction geotechnical surveys to better define the subsurface geological features of the campuses. Data from the geotechnical surveys will help define the vertical and horizontal distribution of paleontologically sensitive subsurface units to assist in the accurate development of any monitoring requirements. Should that data indicate paleontological sensitivity, the following shall occur: • A qualified paleontologist shall be retained to attend a pre-construction meeting with construction personnel. The paleontologist shall inform construction personnel that fossils may be encountered, and provide information on the appearance of fossils, the role of paleontological monitors, and on proper notification procedures; and • A paleontological monitor under the supervision of a qualified paleontologist shall monitor all earth-moving activities with	Less than significant with mitigation incorporated and no cumulative impacts.

Potential Impacts	Mitigation Measures	Level of Significance After Mitigation
	potential to disturb previously undisturbed paleontologically sensitive sediment. The paleontological monitor shall have the authority to halt or divert any activities adversely impacting potentially significant paleontological resources, and those resources must be recovered, analyzed, and curated with the Natural History Museum of Los Angeles County.	
3.13 AGRICULTURE & FOREST RESOURCES		
Implementation of the FMPs would result in the conversion of approximately 11 acres of Prime Farmland on the IVC campus.	<i>No feasible mitigation measures have been identified to reduce this impact.</i>	Impacts are significant and unmitigable.

1.0 INTRODUCTION

1.1 PROJECT OVERVIEW

The South Orange County Community College District (SOCCCD or “district”), founded in 1967, is one of 72 community college districts in California. It is a multi-campus district composed of Saddleback College in the City of Mission Viejo, Irvine Valley College (IVC) in the City of Irvine, and the Advanced Technology & Education Park (ATEP) in the City of Tustin. Saddleback College and Irvine Valley College are accredited, offering associate degrees and providing academic major prerequisites that are transferable to four-year colleges and universities. Critical career technical education programs, popular continuing education courses, and exciting cultural opportunities are also available at each campus. The ATEP campus is administered by Irvine Valley College and currently offers career technical and advanced technology classes from both colleges. SOCCCD currently serves over 40,000 students each semester and employs more than 2,500 faculty and staff.

This draft Program Environmental Impact Report (Program EIR) identifies and evaluates the potential environmental impacts associated with implementation of the 2011 Facilities Master Plans (FMPs) for Saddleback College and Irvine Valley College, including ATEP. The 2011 FMPs¹ describe the needed buildings, infrastructure, vehicular and pedestrian circulation improvements, and proposed sequencing schedules required for construction and operation of instructional and support facilities through the year 2031.

The ATEP chapter of the 2011 FMP for IVC reflects recent and ongoing programming efforts within the framework of previously approved plans for the ATEP academic satellite. As discussed in Chapter 4.0 (*ATEP Analysis*), the approved 2008 ATEP Long Range Academic and Facilities Plan (LRP) and Long Range Academic Plan (LRAP), and the subsequent 2009 Phase 3A Concept Plan, all serve as the functional equivalent of an FMP. Thus, the 2011 FMP provides only a limited status overview of existing and planned facilities at the ATEP campus; it does not propose changes to the analyzed and approved ATEP development plans.

The ATEP campus has been a subject of numerous CEQA documents and site-specific environmental studies leading up to and since conveyance of the ATEP property from the U.S. Department of the Navy to the City of Tustin, and ultimately to SOCCCD. This transfer of ownership is described in the April 22, 2004 Agreement between the City of Tustin and the South Orange County Community College District for Conveyance of a Portion of MCAS, Tustin and the Establishment of an Advanced Technology Educational Campus (“conveyance agreement”). The City of Tustin agreed in the conveyance agreement to convey property comprising approximately 68.37 acres (the ATEP campus) to SOCCCD. Chapter 4.0 (*ATEP Analysis*) of this EIR describes the planning documents, environmental compliance programs, and agency oversight under which development of the ATEP campus will occur. Those approved plans and certified environmental documents for ATEP are separate from, and are not incorporated or readdressed in, the 2011 FMPs or this program EIR.

¹ Available for review at http://www.socccd.edu/about/about_planning.html

1.2 PURPOSE AND USE OF THE EIR

1.2.1 Lead Agency Responsibility

Pursuant to Section 21165 of the California Environmental Quality Act (CEQA),² the district is the “lead agency” responsible for preparing the Program EIR, which will address the potential impacts associated with the 2011 FMPs (or “Proposed Project”). The district is responsible for evaluating the potential significant short- and long-term environmental impacts associated with the planning approvals, construction, and development of the 2011 FMPs.

CEQA is foundational to environmental law and policy in California. CEQA sets broad policy statements that encourage environmental protection. CEQA’s main objectives are to disclose to decision-makers and the public significant environmental effects of proposed projects and to require agencies to avoid or reduce the environmental effects of proposed projects by implementing feasible alternatives or mitigation measures.

CEQA applies to discretionary public and private activities that must be approved by California public agencies, including state, regional, county, city, and other local agencies. CEQA requires all of these California public agencies to comply with both procedural and substantive requirements.

CEQA requires the preparation of an EIR when there is substantial evidence that a project may have a significant effect on the environment. The purpose of the EIR is to provide decision makers, public agencies, and the general public with an objective and informational document that fully discloses the potential environmental impacts of a proposed project. The EIR process also requires investigation and development of feasible mitigation measures to reduce significant adverse environmental effects of a proposed project to a level of less than significant.

CEQA requires that a lead agency neither approve nor implement a project as proposed unless significant environmental impacts have been reduced to an acceptable level (CEQA Guidelines §15091) or the Lead Agency states in writing the reasons for approving a project with significant impacts that cannot be fully mitigated (i.e., Findings of Fact and Statement of Overriding Considerations).

The draft EIR is also meant to facilitate discussions with other agencies regarding the implementation of mitigation measures. CEQA is specific about providing disclosure where “[t]he EIR is to demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological impacts of its action...” (CEQA Guidelines §15003(d)). CEQA also requires consideration of the whole or entirety of an action.

With these guiding principles in mind, the intended uses of this Program EIR are to:

- Inform the decision makers, public, and agencies about the Proposed Project;
- Analyze the environmental impacts of the Proposed Project;
- Identify and implement feasible mitigation measures and project alternatives;
- Provide notice to Responsible Agencies of pending required permits; and
- Incorporate analyses to allow Responsible Agencies to make CEQA findings pursuant to this EIR.

² California Public Resources Code, Division 13, Sections 21000 through 21177 are commonly known as the California Environmental Quality Act (CEQA). Implementing procedures for CEQA are found in California Code of Regulations, Title 14, Chapter 3, Sections 15000 through 15387, commonly known as the CEQA Guidelines.

1.3 DECISION TO PREPARE A PROGRAM EIR

The district prepared a *CEQA Initial Study & Environmental Checklist* (Initial Study) and determined that a Program EIR must be prepared to address the implementation of the 2011 FMPs. Section 15168 of the CEQA Guidelines describes a Program EIR as an EIR that is prepared on a series of actions characterized as one large project and are related either:

- Geographically;
- As logical parts in a chain of contemplated actions;
- In connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or
- As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects that can be mitigated in similar ways.

The advantages of using a Program EIR are:

- Provides for a more exhaustive consideration of impacts and alternatives than practical in an individual EIR;
- Focus on cumulative impacts that may be slighted in a case-by-case analysis;
- Avoidance of continual reconsideration of recurring policy issues;
- Consideration of broad policy alternatives and programmatic mitigation measures at an early stage when the lead agency has greater flexibility to deal with them; and
- Reduction of paperwork by encouraging the reuse of data (through tiering).

1.4 DETERMINING THE SCOPE OF THE PROGRAM EIR

1.4.1 Notice of Preparation

The district mailed a Notice of Preparation (NOP) of a Draft Program EIR to thirty-four (34) responsible and trustee agencies and other interested parties on July 1, 2011. The NOP was accompanied by the Initial Study and was subject to a 30-day public review and comment period from July 1 to August 1, 2011. The district requested that responsible agencies, trustee agencies, and other interested parties inform the district of their environmental concerns, their ideas about the effects of the project, and ways the project might be revised or mitigated to reduce or avoid potentially significant environmental effects. The district received eleven (11) comment letters during the NOP comment period and another three (3) letters after the July 1, 2011 close of the comment period. However, the district considered all fourteen (14) comment letters in determining the scope of the Program EIR and supporting technical studies. The NOP, the Initial Study, and the comment letters are included in Appendix A.

1.4.2 Public Scoping Meeting

The NOP provided public notice of a scoping meeting scheduled at 10:30 a.m. on Thursday July 21, 2011 to receive oral and written comments on the scope and content of the draft Program EIR. The scoping meeting was held at Saddleback College in the Ronald Reagan Board of Trustees, Room 145, Health Sciences/District Offices Building, 28000 Marguerite Parkway, Mission Viejo, CA 92692.

The scoping meeting convened at 10:30 a.m. With no interested parties in attendance, the meeting was adjourned at 10:50 a.m.

1.4.3 Environmental Topics Considered in This EIR

As a result of the Initial Study evaluation and comments received on the NOP/Initial Study, the district determined that the Program EIR will focus on the following environmental issues:

- Aesthetics
- Air Quality
- Agriculture and Forest Resources
- Biological Resources
- Cultural and Paleontological Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Transportation and Circulation
- Utilities and Service Systems

As also discussed in the Initial Study, no significant impacts will result under the following environmental topics and the Program EIR will not address these issues further: Land Use and Planning, Mineral Resources, Population and Housing, Public Services, and Recreation. Furthermore, the NOP comment letters did not comment on or otherwise change the Initial Study's conclusions about these issues.

1.5 AVAILABILITY AND REVIEW OF THE DRAFT PROGRAM EIR

A period of 45 days is established for public review of the draft Program EIR. Copies have been sent to the State Clearinghouse for transmittal to all trustee, responsible, and other State agencies that may have an interest in the project. Agencies, organizations, and individuals are invited to comment on the information presented in the draft Program EIR during this period. Comments should focus on the scope and adequacy of the draft Program EIR in identifying and analyzing possible significant environmental impacts and how these impacts may be avoided or mitigated. Commenters should explain the basis for their comments and support these comments with substantial evidence such as data, references, expert opinion, or other facts. All commentors should include their name and contact information with their comments.

All comments on the draft Program EIR should be sent to the following contact:

Dr. Debra Fitzsimons, Vice Chancellor
South Orange County Community College District
28000 Marguerite Parkway
Mission Viejo, CA 92692
E-mail: dfitzsimons@socccd.edu
Telephone: (949) 582-4663
Fax: (949) 347-2472

Following the 45-day public review period, the district will prepare responses to comments and will compile these comments and responses into a Final Program EIR. In addition, the Board of Trustees will hold public hearings on the draft Program EIR. The Final Program EIR will need to be deemed complete by the district prior to making a decision to approve or deny the Proposed Project.

1.6 INCORPORATION BY REFERENCE

Chapter 8.0 (*References*) lists those documents that are a matter of public record or are generally accessible to the public and which were used to prepare this Program EIR. These documents may be incorporated by reference into this EIR pursuant to CEQA Guidelines §15150 (a) which states: "An EIR or Negative Declaration may incorporate by reference all or portions of another document which is a matter of public record or is generally available to the public. Where all or part of another

document is incorporated by reference, the incorporated language shall be considered to be set forth in full as part of the text of the EIR or Negative Declaration.” Where a document is incorporated by reference, its pertinent sections will be briefly summarized and referenced in the EIR text. Copies of the documents incorporated by reference may be reviewed at the South Orange County Community College District, 28000 Marguerite Parkway, Mission Viejo, CA 92692, (949) 582-4664.

1.7 ACRONYMS

AAQS	Ambient Air Quality Standards
ACM	asbestos-containing materials
ADA	Americans with Disabilities Act
ADT	average daily traffic
AELUP	Airport Environs Land Use Plan
AQIA	Air Quality Impact Analysis
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ASF	assignable square feet
ATEP	Advanced Technology & Education Park
BMP	Best Management Practices
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Cal/EPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBSC	California Building Standards Commission
CDFG	California Department of Fish & Game
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMP	Congestion Management Plan
CWA	Clean Water Act
DEIR	Draft EIR
DGS	California Department of General Services
DOC	California Department of Conservation
DSA	Division of the State Architect
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
EMP	Education Master Plan
FEIR	Final EIR
FEIS/EIR	Final Environmental Impact Statement/EIR
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
FMMP	Farmland Mapping & Monitoring Program
FMP	Facilities Master Plan
FTEF	Full-time Equivalent Faculty
FTES	Full-time Equivalent Students
GHG	greenhouse gas
GHGA	Greenhouse Gas Analysis
GSF	gross square feet
GWP	global warming potential
ICU	intersection capacity utilization
IRWD	Irvine Ranch Water District

ITAM	Irvine Transportation Analysis Model
IVC	Irvine Valley College
LBP	lead-based paint
LCFS	Low-Carbon Fuels Standard
LEED	Leadership in Energy and Environmental Design
LOS	Level of Service
LRAP	Long-Range Academic Plan
LRP	Long-Range Academic and Facilities Plan
LST	localized significance thresholds
MCAS	Marine Corps Air Station
MM	mitigation measure
MNWD	Moulton Niguel Water District
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP/HCP	Natural Community Conservation Plan and Habitat Conservation Plan
NOA	Notice of Availability
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
OCFA	Orange County Fire Authority
OCFCD	Orange County Flood Control District
OCTA	Orange County Transportation Authority
OPR	Governor's Office of Planning & Research
PEIR	Program EIR
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SARWQCB	Santa Ana Regional Water Quality Control Board
SCCIC	South Central Coastal Information Center
SDRWQCB	San Diego Regional Water Quality Control Board
SB	Senate Bill
SCA	Standard Conditions of Approval
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCH	State Clearinghouse
SCS	Sustainable Communities Strategy
SCSAM	South County Sub-Area Model
SF	square feet
SoCAB	South Coast Air Basin
SOCCCD	South Orange County Community College District
SRA	Source Receptor Area
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TMDL	Total Maximum Daily Load
USEPA	U.S. Environmental Protection Agency
V/C	volume/capacity
WSCH	Weekly Student Contact Hours

2.0 PROJECT DESCRIPTION

2.1 PROJECT BACKGROUND

2.1.1 Master Plan Purpose and Need

The South Orange County Community College District (SOCCCD or “district”) is part of the California Community College system. The district’s responsibility is to offer academic and vocational education to students at the lower college division level, with the purpose of advancing California’s economic growth and global competitiveness through education, training, and services that contribute to continuous workforce improvement. To fulfill those responsibilities, the district operates three college campuses in Orange County: Saddleback College in the City of Mission Viejo, Irvine Valley College (IVC) in the City of Irvine, and Advanced Technology & Education Park (ATEP) in the City of Tustin. The SOCCCD college campus locations are each shown on Figure 2-1 (*Regional Location Map*).

A college Master Plan is a comprehensive planning document encompassing all functions of a college or district. A Facilities Master Plan (FMP) evaluates existing land, infrastructure, facilities and systems in relationship to a college’s educational purposes, plans and needs, specifying the capital outlay projects necessary to meet these needs. The 2011 FMP for Saddleback College and the 2011 FMP for Irvine Valley College/ATEP establish 20-year plans for the campuses and are collectively the Proposed Project. To focus and prioritize the physical planning efforts at the campuses, the 2011 FMPs identify various needs and challenges to be addressed, as follows:

- Some buildings are challenged programmatically with systems issues, and those often do not meet contemporary code standards.
- Some buildings require functional and systems upgrades to meet contemporary instructional standards.
- Some academic programs are located in multiple buildings.
- Some provisions for academic and student support programs are marginal and impact daily functions for students, faculty and classified staff.
- Instructional spaces in older facilities often compromise state-of-the-art teaching methods, including technology needs.
- Some student services spaces compromise ease of accessibility.

The 2011 FMP projects will provide new and modernized facilities to consolidate programs and services, foster academic synergy, enhance functional efficiency and improve the identity of individual programs or related courses of study.

SOCCCD has offered courses at the ATEP site since 2007. Saddleback College and IVC personnel develop curricula for courses offered at the ATEP location under the following program categories: Allied Health, Applied Technologies, Media Technologies and Green Technologies. The Saddleback and IVC Education and Facilities Master Plans both contain enrollment projections and facilities plans for ATEP. During development of the ATEP campus, IVC will coordinate the management and operational aspects of the ATEP facility. However, since ATEP was subject to a separate site planning and approval process as part of the Marine Corps Air Station (MCAS) Tustin Specific Plan and Reuse Plan (MCAS Tustin Specific Plan), and has been programmatically reviewed under CEQA under the MCAS Tustin Specific Plan Final Environmental Impact Statement /Environmental Impact Report (FEIS/EIR), the ATEP campus is not a focus of this Program EIR analysis (see section 2.6). A summary of its site history and prior approvals is provided in Chapter 4.0 (*ATEP Analysis*).



At present, the 2006 Facilities Master Plan is the approved document that describes the instructional and support facilities needed to accommodate projected student enrollment through the year 2020 at the district's three campuses. District-wide, most projects identified in the 2006 FMP's 2006-2011 timeframe have been completed or are in process. The status of 2006 FMP projects is discussed separately for both campuses in sections that follow. The 2011 FMPs will replace the 2006 FMP.

2011 Facilities Master Plans
South Orange County Community College District

Since the growth of the district is driven by the projected growth for each campus, the 2011 EMPs are the foundational documents for the FMPs. The EMPs provide qualitative and quantitative assessments of enrollment changes for the prior five years, as well as 20-year forecasts of future enrollments. The EMPs use demographic and economic indicators to determine the amount of space that will be required to accommodate the academic program of instruction and support services, which in turn guides the FMP process. The 2011 FMPs thus describe the needed buildings, infrastructure, vehicular and pedestrian circulation improvements, and proposed sequencing schedules required for construction and operation of instructional and support facilities through the year 2031.

2.1.3 Planning Horizons and Development Timeframes

The 2011 FMPs are projected to a horizon year of 2031. The documents delineate broad solutions for areas of educational growth and details of specific projects will evolve as they are designed in the future. FMP projects include new buildings, renovated/modernized existing buildings, and site improvements (e.g., roadways, pedestrian paths, parking facilities, etc.). The project design evolution is reflected in the sequencing of FMP projects in 5-, 10- and 20-year planning horizons, within which projects are prioritized and designed based on criteria such as existing building and infrastructure conditions, pedestrian and vehicular circulation, utility capacities, code compliance, and energy consumption.

The district's Five-Year Construction Plan, Initial Project Proposals and Final Project Proposals are the short-term implementation of each FMP, while the remaining projects are long-term and will undergo Project Prioritization reviews again in subsequent annual updates. In the 20-year period spanned by the 2011 FMPs, numerous modifications and upgrades to building code compliance and energy standards are anticipated. Therefore, the 2011 FMPs are forward-looking and balance short-term facilities and infrastructure needs with long-term planning principles – a primary example of which is found in the 2011 FMPs' Sustainability Principles. Those are sustainable design and environmental sensitivity reference standards that will be implemented immediately in new construction, and will serve as criteria that evolve as code compliance changes and technology advances. The sustainability theme was only conceptual in the 2006 FMP, whereas the 2011 FMPs provide extensive guidance with regard to water and energy efficient technologies and conservation practices; construction/demolition (C&D) and solid waste recycling; renewable energy standards; stormwater pollutant reduction; and overall sustainable design and building practices.

2.2 PROJECT GOALS AND OBJECTIVES

The district's goal, as part of the California Community College system, is to offer academic and vocational education to students at the lower college division level. In addition, the district's goal is to advance California's economic growth and global competitiveness through education, training, and services that contribute to continuous workforce improvement. Projects to be funded and completed under the guidance of the FMPs must follow State-established criteria for capital outlay projects and address specific categories utilized for State evaluation and approval. As such, the State-defined criteria serve as FMP objectives, as follows:

- Provide for safe facilities and activate existing space
- Increase instructional capacity
- Modernize instructional space
- Promote a completed campus concept
- Increase institutional support services capacity
- Modernize institutional support services space

The FMPs serve as the outline for the district's Five-Year Construction Plan and the foundation of subsequent plans for the allocation of campus resources. Over the longer term, the FMPs are intended to be dynamic documents, subject to change based on future conditions that may affect the district's decisions and directions. Anticipating those future conditions, the FMPs evaluate existing land, infrastructure, facilities and systems in relationship to each college's educational purposes, plans and needs, specifying the capital outlay projects necessary to meet these needs. As they guide physical development of the campuses, the FMPs will:

- Establish clear development/modernization direction for the colleges by strategizing future growth relative to internal and external trends and influences that define the learning needs of the community.
- Provide a foundation for implementation strategies and serve as a primary resource for the development of other college planning activities.
- Inform the community of the colleges' present needs and future plans, forging a closer relationship between the colleges and the community.
- Serve as the basis for facility decisions regarding expansion and modification of facilities and the implementation of all funding measures provided to improve the colleges' facilities.
- Enable coordination between master plan development and ongoing facilities maintenance projects.
- Promote environmental stewardship in college planning and decision-making.

The following sections separately describe the locations, environmental settings, and FMP features applicable to each campus.

2.3 SADDLEBACK COLLEGE FACILITIES MASTER PLAN

2.3.1 Saddleback College Location

The approximately 173-acre Saddleback College campus is located northeast of Marguerite Parkway and Avery Parkway in the City of Mission Viejo. The Interstate 5 (I-5) Freeway and San Joaquin Hills Transportation Corridor (73 Toll Road) are directly west of the campus. The campus is accessed primarily via freeway ramps from I-5 at Avery Parkway and Crown Valley Parkway (see Figure 2-2).

2.3.2 Saddleback College Environmental Setting

Surrounding Land Uses

The surrounding areas south, west and north of the campus are developed with commercial, institutional and residential uses. The Shops at Mission Viejo mall, "big box" commercial, Mission Hospital, and apartments are located to the north; areas to the west are developed as apartments and commercial offices; and single-family residences are to the south. The Arroyo Trabuco immediately east of the campus is dedicated open space along Trabuco Creek.

Physical Conditions Addressed in the FMP

The Saddleback College campus is located on hilly terrain and topography. Terrain and vertical grade variations on the campus reach 80 feet in the central area of the campus (Lot #1 to the Quad). The campus academic core is positioned on a plateau surrounded by parking and athletic facilities at lower elevations. As a result, there have been challenges in designing and developing the overall campus. Most notably, the topographic setting limits campus constructability, impedes pedestrian access, and affects vehicular circulation and access. Therefore, the FMP provides that new development and modernization projects, including buildings and site improvements, must take into

consideration existing slope conditions in designing ADA-compliant accessibility improvements between campus facilities, including parking.

Due to expansive soil conditions and resulting instances of structural damage at Saddleback College, the FMP recommends that site assessments and soils analysis be conducted prior to building placement and site design to confirm stability of subsurface conditions and/or determine soils mitigations necessary to support a new facility. Related to the issue of soils and structural integrity, the FMP also recognizes that drainage and surface water control must be analyzed early in project design in order to determine impacts and mitigations required by new construction. See Sections 3.6 (Hydrology and Water Quality) and 3.10 (Geology and Soils) for further evaluation of these issues.



FIGURE 2-2
SADDLEBACK COLLEGE AERIAL VIEW

2.3.3 Existing Programs and Facilities at Saddleback College

Saddleback College was founded in 1968 and currently serves a full-time student population of 26,000, with a combined full time and part-time faculty of 978 and classified staff of 270. The College offers over 322 associate degrees, certificates, and occupational skills awards in 190 programs.

The campus currently has 30 permanent structures for academic, administrative and facilities functions and 37 portable buildings identified as “The Village” (see Figure 2-3). In terms of gross square footage (GSF), the campus has 699,056 GSF (614,510 GSF permanent and 84,546 GSF in

portables). Buildings range in age from approximately 7 to 38 years. In general, parking lots are located along the internal College Drive loop road. Several instructional and administrative buildings, a football stadium, softball fields, a golf driving range, and a swimming pool are also generally located within the College Drive loop road. Warehouses, village classrooms, campus police, transportation yards, tennis courts, baseball fields, practice fields, and other recreational facilities are located outside and east of the loop road. Please refer to the Draft 2011 FMP for Saddleback College, including the Campus Photographic Record, for detailed information about existing facilities.

2.3.4 Campus Projects in Construction at Saddleback College

At the time the Notice of Preparation (NOP) was distributed for public review and comment, the following 2006 FMP projects were in various stages of progress at the Saddleback College campus:

- James B. Utt Learning Resource Center/Library Renovation: Drywall, insulation, fireproofing, daylighting, painting, stairway construction, roofing, seismic bracing, etc. is ongoing
- Parking Lots 9, 10 and 11: Americans with Disabilities Act (ADA) compliance work is ongoing.
- Southeast Library Bridge Replacement Project: Mobilization for construction is underway.
- Village Expansion Project: Most portable buildings are located in the area known as “The Village.” As new permanent buildings are constructed or existing buildings renovated, the identified program space in all portable buildings will relocate into the new facilities. Some portable buildings will remain inactive on-site during planning horizons, available to be used for interim housing of programs during periods of construction. The most recent building portion was completed in June 2010 and site work was completed in August 2010. If no longer needed, portable buildings will be removed to allow re-purposing of site areas.

These projects encompass approximately 159,000 square feet of campus development and are part of the environmental baseline against which incremental impacts of the proposed FMP projects will be evaluated. Other baselines are as observed and recorded (e.g., cultural and biological resources, land use, etc.) during the same general period between June and August 2011; as measured (e.g., ambient noise, air emissions); and/or as interpolated through other data sources (e.g., traffic and vehicular circulation system performance traffic counts and modeling).

2.3.5 Proposed Building and Site Improvement Projects

Growth Forecasts and Space Needs

The 2011 FMP construction and renovation projects will increase the capacities of campus facilities in order to meet the projected growth in student enrollments and faculty. The 20-year growth projections were developed in the 2011 Education Master Plan for Saddleback College based on current conditions and anticipated demand using the following average annual growth forecasts for each five-year planning horizon:

- 2011-2016 2.00%-2.25%
- 2016-2021 1.75%-2.00%
- 2021-2026 1.75%
- 2026-2031 1.50%

Table 2-1 expresses 20-year growth by several means, all of which are interrelated and are used to calculate future space needs and facilities requirements. Two measures of those growth projections, termed Full-Time Equivalent Students (FTES) and Full-Time Equivalent Faculty (FTEF), are the projections used in this Program EIR as the basis for analyzing vehicle trip generation (see section 4.2, *Traffic and Circulation*).

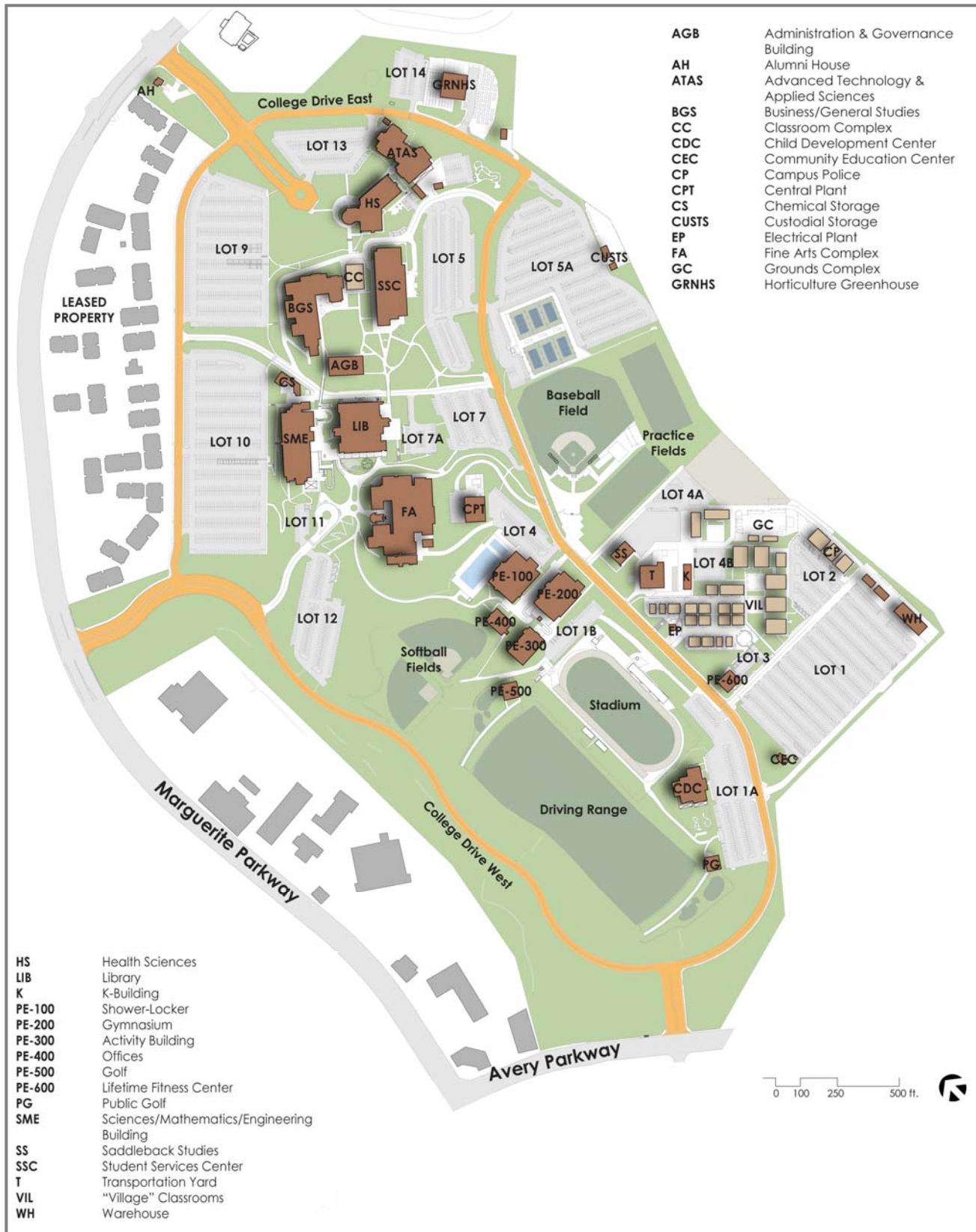


FIGURE 2-3
SADDLEBACK COLLEGE EXISTING CAMPUS PLAN

**TABLE 2-1
SADDLEBACK COLLEGE STUDENT AND FACULTY PROJECTIONS**

Year	Projected Fall WSCH	Estimated Fall Student Headcount	Projected FTES*	Projected Fall FTEF
2010	267,327	27,702	8,106	473
2015	302,359	31,333	10,079	576
2020	334,021	34,614	11,133	636
2025	364,289	37,750	12,144	694
2030	392,443	40,668	13,081	748

Definitions

Weekly Student Contact Hours (WSCH): The number of students enrolled in all courses multiplied by the number of hours the courses meet per week.

Student headcount (or unduplicated enrollment): The number of actual students enrolled at the college. It is a gross figure that includes full and part-time students, both on-campus and off-campus (e.g., online).

Full-Time Equivalent Students (FTES): One FTES is one student taking 15 hours of instruction per week for two semesters of 17.5 weeks. While most students do not necessarily enroll in 15 hours of instruction per week, the district calculates aggregated student attendance in this manner for funding purposes and to measure enrollment in a given class or program.

Full-Time Equivalent Faculty (FTEF): One FTEF is one full-time faculty member teaching the equivalent of a full load of classes; it is not a headcount. FTEF figures do not separate out part-time faculty and do not include classified staff or administrators.

*Includes FTES generated by those courses offered at the ATEP campus.

The 20-year growth projections assume a long-term ratio of headcounts to FTES similar to the 2010 base year, though the district may update forecasts on an annual basis. The projections do not take into account artificial growth factors or inhibitors, such as campuses choosing to cap enrollment or cut courses, nor do they take into account any shifts toward online (off-campus) students.

The 20-year growth projections in Table 2-1 translate to a need for 416,901 assignable square feet¹ (ASF) of Instructional/Office space, of which the 2011 FMP has programmed 404,552 ASF (existing and new) through the 2031 planning horizon. The 20-year non-instructional space need is 143,538 ASF. In total, the FMP has planned for 838,510 GSF of permanent facilities, which is a 224,000-GSF increase over the existing 614,510 GSF. Some of the 84,546 GSF of existing portables will be removed from the campus in phases through 2031. The proposed campus build-out plan is provided in Figure 2-4.

The 2011 FMPs generally categorize projects as Building/Structural (i.e., new and renovated classrooms/labs/offices, athletic facilities, etc.) or Site Improvements (e.g., roadways, parking lots, landscaping, walkways/plazas, etc.). Some buildings are currently undergoing renovation and modernization, while others are planned for minor to major upgrades in order to address specific structural and safety issues; provide functional improvements; upgrade infrastructure; and bring buildings up to current code standards. The full scope of new and renovated buildings and other site improvement projects (i.e., utilities, roadways, pedestrian facilities, etc.) are best reviewed in the

¹ Assignable square feet (ASF) is the space requirement for a given program based on instructional and non-instructional needs, including Lecture, Laboratory, and Office. ASF generally does not include corridors, restrooms and other building support spaces, nor does it include structural elements like walls and columns. Gross Square Feet (GSF) is the total enclosed area of the building. The ratio of ASF to GSF is the building efficiency described as a percentage. The 2011 FMPs use an average 68 percent efficiency rate (e.g., a 10,000 ASF space need requires a building with an area of about 14,700 GSF). Future building ASF, GSF and efficiency factors will be validated during subsequent programming processes.

2011 FMPs in their graphical and planning contexts, and with construction details and secondary effects descriptions (i.e., relocations, minor repairs, finish replacement). Please refer to the 2011 FMPs available online at http://www.socccd.edu/about/about_planning.html.

The major projects planned for the first 5 years (2011 to 2016) of the Saddleback College FMP are listed below, followed by key new projects (or significant renovations) by type for the entire 2011-2031 project sequence:

2011-2016 Planning Horizon Projects

Projects in the 2011-2016 development horizon are those currently in stages of approval processes or directly impacted by projects in the approval processes.

- New Sciences Building and Utilities Service: 80,000 GSF approved and in design. Includes a new 9,000 SF Sciences Building Demonstration Garden. Construction documents are now being prepared for the facility.
- Renovation of the Technology and Applied Sciences Building: 40,000 GSF approved and in planning. Construction documents are now being prepared for the renovations.
- New Loop Road Alignment, Sitework and Infrastructure: Approved and in planning; includes renovations to southeast campus perimeter for drainage control.
- New Gateway Building: Multi-story 79,500 GSF building for Student Services and instructional labs, classrooms and support.
- Renovation of the Gateway Building/Transit Entrance Plaza: Approximately two-acres of demolition and new construction resulting in a decrease of impervious surface area (total 20 percent paved, 80 percent landscaped).
- Renovation of the Quad Landscape/Hardscape: Approximately 2.4 acres (104,000 SF) of multi-phase demolition and new construction resulting in a decrease of impervious surface area (total 50 percent paved, 50 percent landscaped).

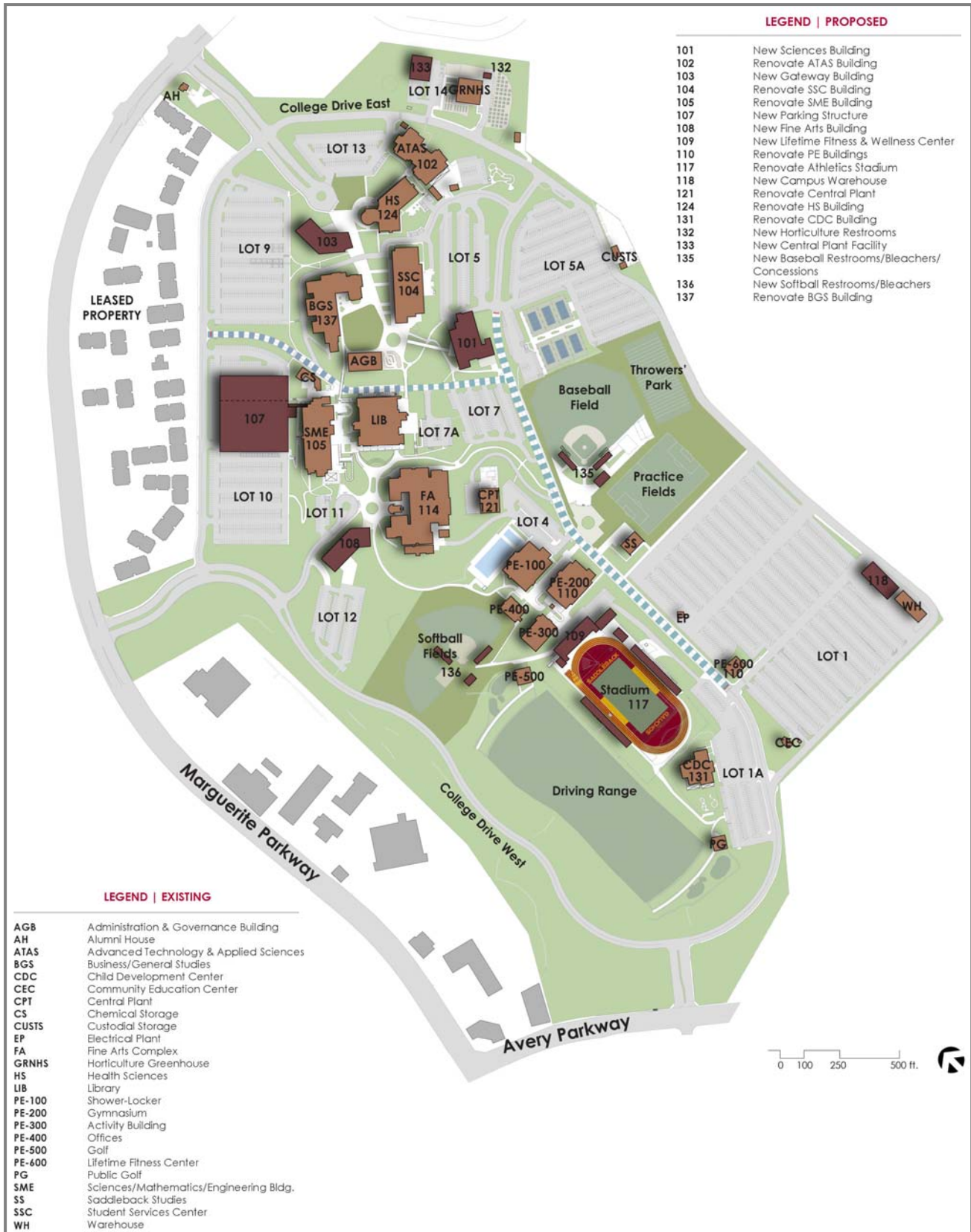
Vehicular Circulation & Parking

The Saddleback College campus has three signalized entrance/exit drives: Marguerite Parkway at College Drive, Marguerite Parkway at College Drive West, and Avery Parkway. All three feed into College Drive East and College Drive West, which form a loop road with access to the 17 paved surface lots providing 4,436 parking spaces. There is a bus transit stop and auto court at the College Drive entrance. In addition, there is a campus “access” shuttle bus service with six stops on campus.

The 2011 FMP proposes a new, easterly extension of the loop road along the eastern perimeter of the campus. Much of the eastern portion of the existing College Drive loop road is proposed for realignment to route traffic to the perimeter. A parallel portion of the existing College Drive loop road would be closed off and integrated into the pedestrian circulation system. The proposed Loop Road alignment, sitework, and infrastructure project is approved for planning (see separate description below). Other vehicle-oriented projects include:

- Construct a new 1,500-space multi-level parking structure in the western portion of the campus along College Drive East.
- Construct a new 960-space surface parking lot near the existing football stadium and practice fields.

Section 3.2 (Traffic and Circulation) contains a description of parking additions and losses due to FMP projects. Upon buildout of the FMP, the net parking supply on campus is estimated at 6,226 spaces.



Proposed Loop Road

The proposed Loop Road project is intended to alleviate the traffic that backs up from the south campus entry drive onto Avery Parkway, and to improve drainage conditions at the south end of the campus (see Section 3.6, Hydrology and Water Quality, for description and analysis). The district and its consultants designed and analyzed three conceptual options for the new Loop Road configuration. In March 2011, the team produced a *Loop Road Development and Analysis Report – Phase I* (“Phase I Report”), which recommended the *“Base Alignment reconstruction plan with Alternate B modifications as the preferred design scheme for the Saddleback College proposed new Loop Road.”*

The proposed Loop Road site is generally located along the east and southeast edges of the campus and begins at the intersection of College Drive East and Security Road. The existing loop road alignment follows College Drive East, proceeding northerly across the campus past parking Lot 5A, where it turns west to intersect with College Drive West and the College Drive entrance road. The 0.6-mile parallel portion of the existing College Drive loop road, between Security Road and Lot 5A, will be closed off and integrated into the pedestrian circulation system.

From the intersection of College Drive East and Security Road, the proposed Loop Road alignment will extend easterly along Security Road, adjacent to the south property line and existing residential development. At the southeast corner of the campus, the proposed alignment will turn and run north along the east property line, parallel to and just west of the Trabuco Creek corridor and drainage area. Located to the west of the proposed new Loop Road are the campus maintenance and operations facilities, which include the campus warehouse as well as the police station, parking lots and athletic fields. The north end of the proposed new Loop Road will run northward to join the existing perimeter road (College Drive East) at parking Lot 5A.

The proposed Loop Road is expected to require approximately six (6) months to construct and will have the following design features and effects:

- **Roadway width:** Thirty-two (32) feet wide, curb face to curb face (same width as College Drive East; approximately 9 feet wider than existing Security Road).
- **Pedestrian access:** At completion, a four (4)-foot wide sidewalk will be constructed on the campus side of the Loop Road along its entire length. During construction, the impact to student access will be limited. By locating the proposed Loop Road to the south and east of existing campus facilities, the selected alignment provides the least impact between the pedestrian traffic and access to the existing facilities, such as the police station and warehouse facilities. The alignment also has minimal impact to the existing parking facilities and does not encroach into the pedestrian patterns between the campus and those parking lots. By also implementing the Alternate B alignment modification analyzed in the Phase I Report, the northern portion of the proposed Loop Road will be routed around the existing maintenance facility so the yard and buildings can remain in their current location with modified access. In addition, the proposed Loop Road will provide direct vehicular access to parking Lot 5A without affecting pedestrian movement.
- **On-site vehicular traffic patterns:** No new traffic will be generated by the proposed Loop Road project. The existing traffic backup at the Avery Parkway entrance is due to pedestrian crossings, stop signs, and speed humps that are located along the existing loop road that runs between the campus and the major parking areas. The proposed Loop Road would re-route the cars around the perimeter of the campus, allowing the cars to move more freely. Existing traffic will thus shift from Avery Parkway to the proposed Loop Road. Based on campus-wide traffic and parking surveys, as well as traffic flow surveys at the College Drive East and Security Road intersection, it was determined that the installation of a traffic signal

at this location would provide a significant reduction in traffic delay, provided the proposed new Loop Road is configured to allow unimpeded traffic flow. To accomplish this unimpeded traffic flow, it is recommended that a raised median island with dedicated left-turn access be provided at predetermined points into parking Lots 1 and 5A. A second Loop Road traffic signal is proposed at its intersection with the access road to parking Lot 5, just north of parking Lot 5A.

The campus bus route will follow the proposed new Loop Road and will no longer follow College Drive road through the lower campus. Bus stops will be provided along the proposed Loop Road. Additionally, overall emergency access will be improved by the Loop Road project.

- **Closure of College Drive East:** A gate is proposed across College Drive East at Security Road to prevent automobile traffic from proceeding further down College Drive East. However, both pedestrian and bicycle traffic will be allowed to travel further onto College Drive East from this intersection. The gate would also allow and maintain the current level of emergency vehicle access to the lower campus areas.
- **Parking provisions and modifications:** Parking is a critical concern on the existing campus and the proposed new Loop Road route will impact existing parking in both parking Lots 1 and 5A. Approximately 103 parking stalls will be lost and reconfiguration of those parking layouts is necessary to accommodate the proposed Loop Road alignment.

The Phase I Report recommends restriping parking Lot 1 from 30-degree angled parking to 90-degree parking. This would decrease the number of spaces lost due to construction of the proposed Loop Road by approximately 40 spaces. The 2011 FMP incorporates the findings and recommendations of the Phase I Report and accommodates the parking reconfiguration with a net increase in parking through the 2031 planning horizon.

- **Street lighting:** The proposed Loop Road is currently unlighted; however, it receives ambient illumination from adjacent buildings and parking areas. The new Loop Road, its associated pedestrian paths of travel, and parking Lot 1 will require new lighting that demonstrates sensitivity to the adjacent habitat in the Trabuco Creek corridor and to the residential neighborhoods to the south. To meet those design objectives, new energy efficient LED light fixtures with shielding will be used to prevent light pollution (spillover and glare) from entering these sensitive areas.
- **Drainage and water quality improvements:** Hydrology calculations have been prepared as part of the Phase I Report and show that the 100-year flood flows will be conveyed to two (2) off-site discharge locations: one at the southeast corner of the campus, and the other at the Avery Parkway entrance/exit to the campus. A new system of stormdrains and water quality improvements will be constructed along the entire length of the proposed Loop Road, as described in Section 3.6 (Hydrology and Water Quality).

The Loop Road project will install Contech Stormfilter (or similar) catch basin cartridges, curb inlet cartridges and vault cartridges at roadway and parking lot locations specified on the Loop Road Phase I civil design plans. Curb heights along the eastern property line will also be raised to prevent runoff and sediment from the natural slope from washing down onto the road. Finally, in median islands and parking lot planters, interlocking permeable pavers at the end caps, and crushed rock in the planting area, will increase infiltration and reduce the amount of water runoff.

- **Landscaping:** The existing vegetation will be modified along the proposed Loop Road. With landscape sustainability as a major design influence, landscaping will consist of long-lasting, low-maintenance vegetation with low resource consumption requirements. The plant

materials will be selected by a qualified landscape architect based on aesthetics, foliage and color, water requirements and survivability.

- **Slope Encroachment:** The Phase I civil design plans show that the proposed Loop Road will encroach upon portions of the slope in the adjacent property owned by the City of Mission Viejo. This will be necessary to provide adequate area for landscape establishment and slope protection above the Arroyo Trabuco. Proposed slopes adjacent to the Loop Road will be graded at a ratio of 3:1 (horizontal to vertical). The Phase I design team met with City representatives to discuss this encroachment and submitted a map of the requested encroachment. The City is amenable to this proposal and will review and comment on plans prior to granting a slope easement. Section 3.8 (*Biological Resources*) addresses the effects of slope encroachment on adjacent sensitive habitat.
- **Utilities:** Existing utilities will be used; no new utilities will be brought on campus.

Athletic Improvements and Facilities

- Construct a new Lifetime Fitness and Wellness Center next to the existing football stadium.
- Construct a new throwers park and practice field next to the existing baseball field.
- Renovate the existing football stadium.
- Construct a new Athletics Plaza next to the existing baseball field.
- Construct new Baseball restrooms, bleachers, and concessions near the existing baseball field.
- Construct new Softball restrooms and bleachers near the existing softball field.

Academic and Support Improvements and Facilities

- Construct a new Science building near the Students Services Center.
- Construct a new Gateway building at the end of the northern campus entry.
- Renovate the Student Services building.
- Construct a new Fine Arts building next to the existing Fine Arts Complex.
- Renovate the Math/Science/Engineering building.
- Construct a new campus warehouse near the eastern boundaries of the campus.
- Renovate the existing Central Plant next to the existing Fine Arts building.
- Construct new Horticulture restrooms next to the existing Horticulture Greenhouse.
- Construct a new Central Plant and power generation facility next to the existing Horticulture Greenhouse.

Open Space and Related Improvements and Facilities

The 2011 FMP envisions pathways designed with varying shapes, materials, amenities, and functions. The pathways integrate ramp systems where the terrain exceeds the maximum slope angle for access by those with disabilities, thereby complying with all ADA code requirements throughout the pathway system. Improvements include:

- Renovate the existing campus pedestrian pathways between the Fine Arts Plaza and PE Plaza.
- Renovate the existing Fine Arts Plaza next to the existing Fine Arts building.

2.4 IRVINE VALLEY COLLEGE FACILITIES MASTER PLAN

2.4.1 Irvine Valley College Location

The approximately 100-acre Irvine Valley College campus is bordered by Irvine Center Drive to the north, Jeffrey Road to the west and Barranca Parkway to the south. The IVC campus is in the City of Irvine (see Figure 2-5).



FIGURE 2-5
IRVINE VALLEY COLLEGE AERIAL VIEW

2.4.2 Irvine Valley College Environmental Setting

Surrounding Land Uses

The eastern perimeter of the IVC campus is bounded by a single-family residential community. The surrounding area is primarily residential, with golf recreation and a mix of commercial and other land uses. The IVC campus is also in close proximity to the University of California, Irvine campus and the Spectrum commercial, retail and entertainment center.

Southern California Edison (SCE) right-of-way is located along the southern and western perimeters, fronting Barranca Parkway and Jeffrey Road, respectively. Directly fronting Barranca Parkway is a relatively undisturbed natural easement that is owned by the City of Irvine. The SCE right-of-way and City of Irvine easement are located outside the boundaries of the Irvine Valley College campus.

Physical Conditions Addressed in the FMP

The IVC campus has no substantial topographic variation and slopes gently to the south toward Barranca Parkway and the City of Irvine easement. On campus, the impact of topography upon building construction and accessibility is minimal, but drainage is seasonably affected and localized flooding can occur. The remaining undeveloped areas of the campus are addressed in Sections 3.6 (*Hydrology and Water Quality*) and 3.13 (*Agriculture and Forest Resources*).

2.4.3 Existing Programs and Facilities at IVC

Irvine Valley College was founded in 1979 and was originally named the Saddleback College North Campus. Renamed as Irvine Valley College in 1985, IVC currently serves a student population of 15,000, with a combined full time and part-time faculty of 400 and classified staff of 178. The college currently provides academic services to students in 16 individual Schools and 10 affiliated programs and has a top-rated transfer rate to four-year institutions.

The campus has about 400,000 GSF among 22 permanent structures, and another 15,000 GSF of existing portables, for academic, administrative and facilities functions (see Figure 2-6). Buildings range in age from approximately about 3 to 30+ years. In general, parking lots are located along the Jeffrey Road and Irvine Center Drive frontages, with additional parking provided along the western border. The instructional and administrative buildings are generally located within the northern portion of the campus. Tennis and basketball courts, baseball fields, soccer fields, practice fields, and an agricultural field are located within the southern portion of the campus. Please refer to the Draft 2011 FMP for Irvine Valley College, including the Campus Photographic Record, for detailed information about existing facilities.

2.4.4 Campus Projects in Construction at IVC

At the time the Notice of Preparation (NOP) was distributed for public review and comment, the following 2006 FMP projects were in various stages of progress at the IVC campus:

- Great Lawn Project: A new great lawn area is under development next to the existing physical education buildings and Performing Arts Center. As of December 2010, an area of about 1.5 acres had been graded and soil had been imported and stockpiled. Project construction is ongoing.
- New Life Sciences Building (see description in following section): A new 30,000 GSF Life Sciences building is under construction and has displaced the Kaplan Aspect International portable buildings along the eastern perimeter of the campus. Kaplan A.I. has been relocated to the northern side of the campus. Construction is ongoing.

These projects encompass approximately 2.5 acres of the campus and are part of the environmental baseline against which incremental impacts of the proposed FMP projects will be evaluated. Another 106,000 square feet of development from the 2006 FMP's 2006-2011 planning horizon has already been constructed.



FIGURE 2-6
IRVINE VALLEY COLLEGE EXISTING CAMPUS PLAN

2.4.5 Proposed Building and Site Improvement Projects

Growth Forecasts and Space Needs

The 2011 FMP construction and renovation projects will increase the capacities of campus facilities in order to meet the projected growth in student enrollments and faculty. The 20-year growth projections were developed in the 2011 Education Master Plan for IVC based on current conditions and anticipated demand using the following average annual growth forecasts for each five-year planning horizon:

- 2011-2016 3.00%
- 2016-2021 2.50%
- 2021-2026 2.00%
- 2026-2031 2.00%

Table 2-2 expresses 20-year growth by several means, all of which are interrelated and are used to calculate future space needs and facilities requirements.

TABLE 2-2
IRVINE VALLEY COLLEGE STUDENT AND FACULTY PROJECTIONS

Year	Projected Fall WSCH	Estimated Fall Student Headcount	Projected FTES*	Projected Fall FTEF
2010	141,250	15,477	4,496	255
2015	164,791	19,095	5,438	315
2020	186,572	21,619	6,163	355
2025	205,990	23,869	6,805	392
2030	227,430	26,353	7,511	433

Definitions

Weekly Student Contact Hours (WSCH): The number of students enrolled in all courses multiplied by the number of hours the courses meet per week.

Student headcount (or unduplicated enrollment): The number of actual students enrolled at the college. It is a gross figure that includes full and part-time students, both on-campus and off-campus (e.g., online).

Full-Time Equivalent Students (FTES): One FTES is one student taking 15 hours of instruction per week for two semesters of 17.5 weeks. While most students do not necessarily enroll in 15 hours of instruction per week, the district calculates aggregated student attendance in this manner for funding purposes and to measure enrollment in a given class or program.

Full-Time Equivalent Faculty (FTEF): One FTEF is one full-time faculty member teaching the equivalent of a full load of classes; it is not a headcount. FTEF figures do not separate out part-time faculty and do not include classified staff or administrators.

*Includes FTES generated by those courses offered at the ATEP campus.

The 20-year growth projections assume a long-term ratio of headcounts to FTES similar to the 2010 base year, though the district may update forecasts on an annual basis. The projections do not take into account artificial growth factors or inhibitors, such as campuses choosing to cap enrollment or cut courses, nor do they take into account any shifts toward online (off-campus) students.

The 20-year growth projections in Table 2-2 translate to a need for 263,032 assignable square feet (ASF) of Instructional/Office space, of which the 2011 FMP has programmed 262,824 ASF (existing and new) through the 2031 planning horizon. The 20-year non-instructional space need is 141,984 ASF. In total, the FMP has planned for 556,440 GSF of permanent facilities, which is almost a 157,000-GSF increase over the existing 400,000 GSF. Another 15,000 GSF of existing portables will remain in use as needed through 2031. The proposed campus build-out plan is provided in Figure 2-7.

Some buildings are currently undergoing renovation and modernization, while others are planned for minor to major upgrades in order to address specific structural and safety issues; provide functional improvements; upgrade infrastructure; and bring buildings up to current code standards. The full scope of new and renovated buildings and other site improvement projects (i.e., utilities, roadways, pedestrian facilities, etc.) are best reviewed in the 2011 FMPs in their graphical and planning contexts, and with construction details and secondary effects descriptions (i.e., relocations, minor repairs, finish replacement). Please refer to the 2011 FMPs available online at http://www.socccd.edu/about/about_planning.html.

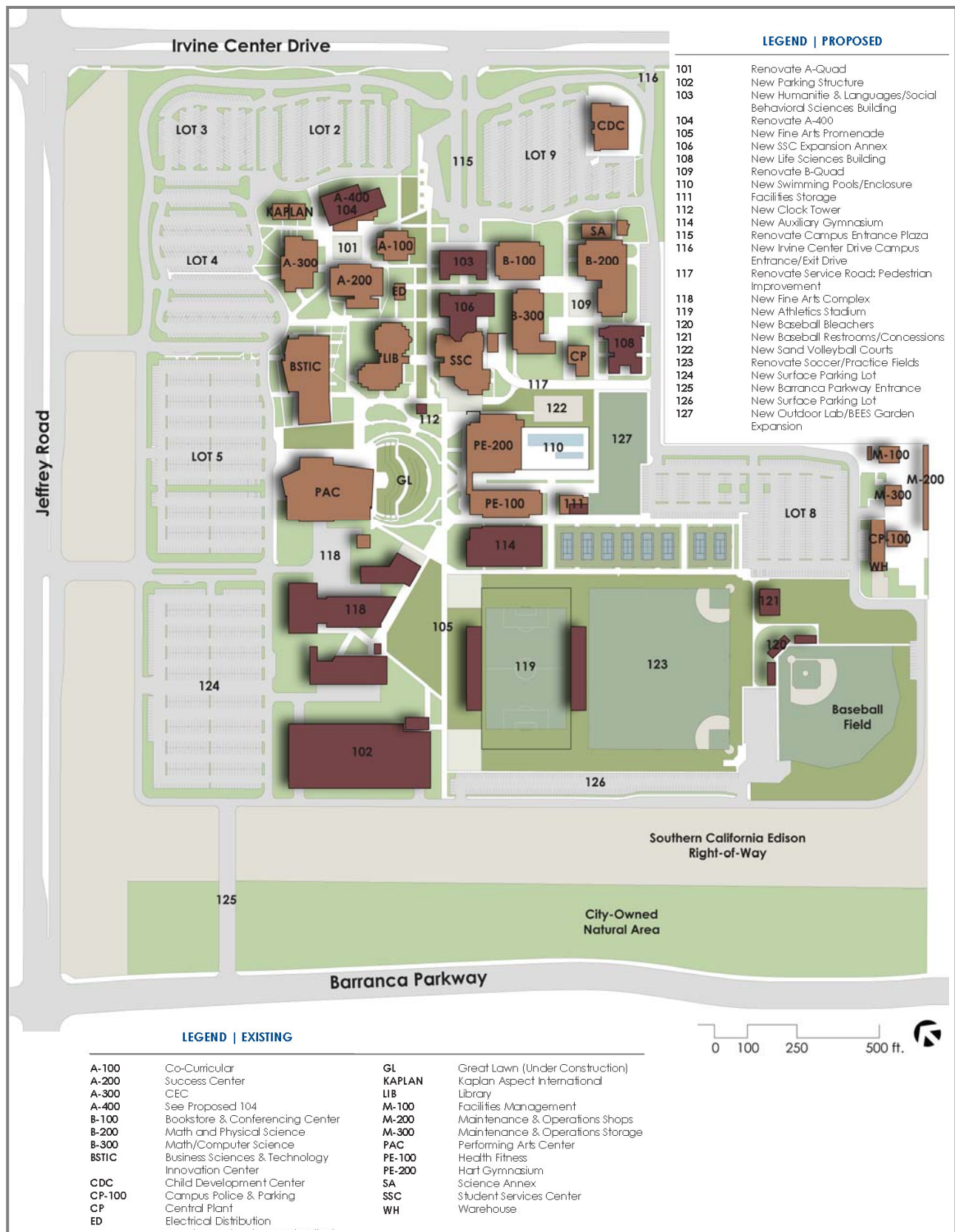


FIGURE 2-7
IRVINE VALLEY COLLEGE PROPOSED CAMPUS PLAN

The major projects planned for the first 5 years (2011 to 2016) of the IVC FMP are listed below, followed by key new projects (or significant renovations) by type for the entire 2011-2031 project sequence:

2011-2016 Planning Horizon Projects

Projects in the 2011-2016 development horizon are those currently in stages of approval processes or directly impacted by projects in the approval processes.

- New Life Sciences Building: Multi-story 30,000 GSF building approved and in construction, with goal of LEED (Leadership in Energy and Environmental Design) certification at the Gold level. Earthwork on the facility site was initiated in June 2011, and construction is now underway.
- Renovate and expand A-400: Humanities and Languages/Social Behavior Sciences/Co-curricular Center: Renovate and increase the size of the existing 12,094 GSF one-story to 24,000 GSF; update mechanical improvements; replace all interior partitions, lighting, and finishes; and renovate and modify exterior finishes. Design of this renovation is currently in progress.
- Renovate A-200: Renovate one-story 16,149 GSF Success Center (Writing Lab, World Language/English as Second Language, Reading/Tutoring); update mechanical improvements; replace 75 percent of interior partitions, 100 percent of lighting, and finishes; and renovate/modify restrooms and exterior finishes.
- Renovate B-300 Second Floor: Renovate two-story 10,000 GSF Math/Computer Science Building; update the first and second floor restrooms; and replace interior lighting and finishes.
- New Surface Parking Lot (Phase I): New 135,000 SF parking lot with 400 spaces and lighting.
- New Fine Arts Complex: New single-story 57,560 GSF building for Arts Instructional Labs and support, and hardscape/landscape for Campus connectivity. It is expected that State funding may be available in fiscal year 2013-14.
- Renovate Performing Arts Yard: 31,000 SF area renovation, involving demolition of existing asphalt surface and replacement and expansion to new concrete surface.
- New Barranca Parkway Access Road and Campus Entrance/Exit Drive: This project is a connector road from Barranca Parkway to the existing loop road at the south end of the campus. Although shown in the 2011 FMP, the Barranca Parkway Access Road was contemplated by the district and City of Irvine since 1996 and was a planned project in the 2006 FMP. Signalization has been anticipated since the original conceptual approval of the access and is required pursuant to the 1996 Grant Deed transferring the property from The Irvine Company to the City. The Barranca Parkway Access Road was approved by the district and the City following design and environmental review processes that preceded, and are separate from, the 2011 FMP process. Therefore, the access road is a cumulative project for analysis purposes in this EIR. The approved access road is described in the *Vehicular Circulation & Parking* section that follows. The project is in final engineering review by City of Irvine and scheduled to be constructed in 2012-2013, subject only to the Division of the State Architect (DSA) design review for disabled accessibility.

Vehicular Circulation & Parking

The IVC campus has three entrance/exit drives: one from Irvine Center Drive (signalized) and two from Jeffrey Road (one signalized, one unsignalized). All three feed into the campus loop road, with access to the eight (8) paved surface lots providing 2,262 parking spaces. The current campus is

efficient for navigation, with parking located at the campus periphery and the center of campus primarily pedestrian-oriented. There is a bus transit stop and auto court located at the Irvine Center Drive entrance.

The 2011 FMP proposes improvements to enhance the campus's identity and navigation, create a "transit plaza," promote use of transit systems, and provide necessary parking inventory to meet the needs of a commuter-based institution. The approved Barranca Parkway Access Road entrance/exit drive, just east of Jeffrey Road, is in the final engineering phase (see separate description below). An additional campus entrance/exit drive is proposed on Irvine Center Drive. The additional entrance/exit drives would improve traffic distribution and relieve queuing issues. Parking will be maintained at the campus periphery to promote a pedestrian-centered environment, reduce pedestrian-vehicle interaction, and result in higher levels of pedestrian safety. On-campus emergency vehicle and campus service vehicle access would be accommodated, in addition to meeting accessibility needs.

IVC campus circulation and parking projects include:

- The agricultural field located at the southwest corner of the campus will be developed to include a new 650-space surface parking lot and 800-space parking structure to meet daily needs and to accommodate large group events that would take place at the athletic fields, new Gymnasium, and new Athletics Stadium.
- The existing Extra Parking south of the soccer and practice fields will be paved to accommodate 185 parking spaces.
- A new eastern Entrance/Exit will be located along Irvine Center Drive and will operate as a secondary right-in/right-out only drive.
- The primary Irvine Center Drive Plaza entrance/exit drive will be renovated for entry re-route and bus drop-off.

Section 3.2 (*Traffic and Circulation*) contains a description of parking additions and losses due to FMP projects. Upon buildout of the FMP, the net parking supply on campus is estimated at 3,705 spaces.

Barranca Parkway Access Road

The approved Barranca Parkway access road is located along the southwest side of the IVC campus, approximately 700 feet southeast of the Jeffrey Road/Barranca Parkway intersection and directly opposite the Shadow Oaks (apartment community) entry road. The access road will be about 500 feet long, extending from Barranca Parkway to the IVC perimeter loop road. The proposed access road requires traversing through publicly-owned land (City of Irvine) as well as private land (Southern California Edison). The proposed design incorporates a 70-foot roadway cross-section with a roadway width (curb-to-curb) of 48 feet, including one 20-foot entry lane and one 20-foot exit lane separated by an 8-foot-wide median. Sidewalks (5 feet wide) will be constructed on both sides of the road; a landscaped parkway of varying widths (up to 10 feet wide) will be present on the west side of the road to enhance the transition into the campus. The proposed median will be raised and landscaped on the southern half of the roadway (on the City of Irvine-owned parcel) and painted on the northern, SCE-owned property. The project will require signalization and other improvements at the four-way intersection of Barranca Parkway, Shadow Oaks, and the access road. The project is scheduled to begin construction in 2012.

Athletic Improvements and Facilities

- New baseball bleachers, restrooms, and concessions will be located near the backstop of the existing baseball field, which is located at the southeast corner of the campus.
- The existing soccer and practice fields will be renovated. In a later Planning Horizon, new bleachers, restroom/concession building, and a new regulation grass soccer field will comprise the new Athletics Stadium at the site of the existing soccer field.
- A new auxiliary gymnasium will replace existing basketball courts near the center of the campus.
- New sand volleyball courts and a new swimming pool will replace parking lot 8A.

Academic and Support Improvements and Facilities

- Part of the agricultural field at the southwest corner of the campus will be developed as a new Fine Arts complex.
- New Humanities and Languages/Social Behavioral Sciences building and Administration Annex building will be located at the end of the main Irvine Center Drive entrance.
- An existing building will be renovated into a new Bookstore/café, which will be located next to the Humanities and Languages/Social Behavioral Sciences building.
- A new Outdoor Lab/Biology, Ecology, and Environmental Studies Garden expansion will replace existing parking near eastern perimeter of campus.

Open Space and Related Improvements and Facilities

- A new field observation area will be located near the existing City of Irvine-owned natural area which is located off-campus to the south.
- The existing plaza located in the center of the existing A-buildings will be renovated.
- A new pedestrian promenade will be located near the new Fine Arts complex.
- The existing plaza in the center of the existing B-buildings will be renovated.
- A new Clock Tower will be located next to the existing library.

2.5 ENVIRONMENTAL DESIGN AND SUSTAINABILITY COMPONENTS

The FMPs establish design principles and guidelines for creating modern, safe and environmentally-responsible campuses. The design principles address building heights, lighting, public space usage, campus safety and accessibility, and site signage. The guidelines provide recommendations for the campus site layout, buildings, landscaping and hardscape scheme. Campus "sustainability" will be achieved, in part, through the use of LEED technical guidelines in site selection, water conservation and management, energy efficiency, conservation of materials and resources, and indoor environmental quality.

SOCCCD's commitment to environmental sustainability subsequently became a central focus in the 2011 FMPs, as demonstrated throughout this EIR. Insofar as the 2011 FMPs' environmental and energy programs are founded in sound planning and engineering; long-term cost-efficiency and benefits; technological advancement and partnerships; and faculty/student support, the positive environmental effects will far outweigh the temporary environmental effects that are often the subject of concern during the CEQA process. Traffic disruption, air emissions, and noise during construction can and will be mitigated to the extent possible. While such mitigation provides short-term relief to affected nearby land uses and residents, the environmental enhancement and

protection programs in 2011 FMPs and future updates will ensure long-term environmental health, public safety, and land use compatibility.

Since the planning, design, and construction processes that are subject to CEQA analysis are also integral to the district's LEED initiatives, it is important to understand the numerous activities that will be typical of building and other facilities construction, and how they will be implemented under the FMP sustainability strategies. Those strategies provide examples of how FMP implementation will be "self-mitigating" in that it will reduce or avoid many of the potential environmental effects that are typical of development projects designed without sustainability in mind. An example of the interrelated nature of LEED and CEQA is in the category of Conservation of Materials and Resources. Construction materials have replacement life-cycles and environmental costs associated with their manufacture, transport, use, replacement, and disposal – all of which are integral factors in evaluating environmental performance. Those costs are highly dynamic as new products and materials are developed; therefore, they are not reasonably quantified in EIRs for long-term projects. However, the fundamental environmental performance criteria serve as an ongoing basis for the LEED ratings and certifications that SOCCCD intends to achieve for all new campus development. As such, this Program EIR relies in part on the LEED process to ensure that certain environmental issues are addressed at the project level throughout the FMP program period.

2.6 ADVANCED TECHNOLOGY & EDUCATION PARK (ATEP)

2.6.1 Campus Location and Existing Setting

The 68-acre ATEP property is located in the City of Tustin at the site of the former MCAS Tustin, now referred to as "Tustin Legacy" (see Figure 2-8). Tustin Legacy is a 1,606-acre mixed-use project that will ultimately include housing, commercial businesses, a research park, a one million square-foot outdoor shopping mall, a conference center, hotels, schools, and community and regional parks. Portions of Tustin Legacy are developed. Approximately 1,511 acres of Tustin Legacy are located within the City of Tustin. Approximately 95 acres are located within the City of Irvine. The City of Santa Ana borders Tustin Legacy to the southwest.

The ATEP property extends from about 300 feet north of Valencia Avenue to about 2,600 feet south of Valencia, and is generally bordered by Red Hill Avenue to the west and Armstrong Avenue along the east. Entry into the existing campus portion of the property is provided along Valencia Avenue. The Costa Mesa (SR-55) and Santa Ana (I-5) freeways provide the closest regional access to ATEP.

The ATEP property is adjacent to the Orange County Rescue Mission, a parcel retained by the City of Tustin, the Rancho Santiago Community College District Sheriff's Training Academy, the County of Orange Sheriff's Training Center and the City of Tustin Child Care Facility. The west side of Red Hill Avenue is comprised largely of commercial business and light manufacturing.

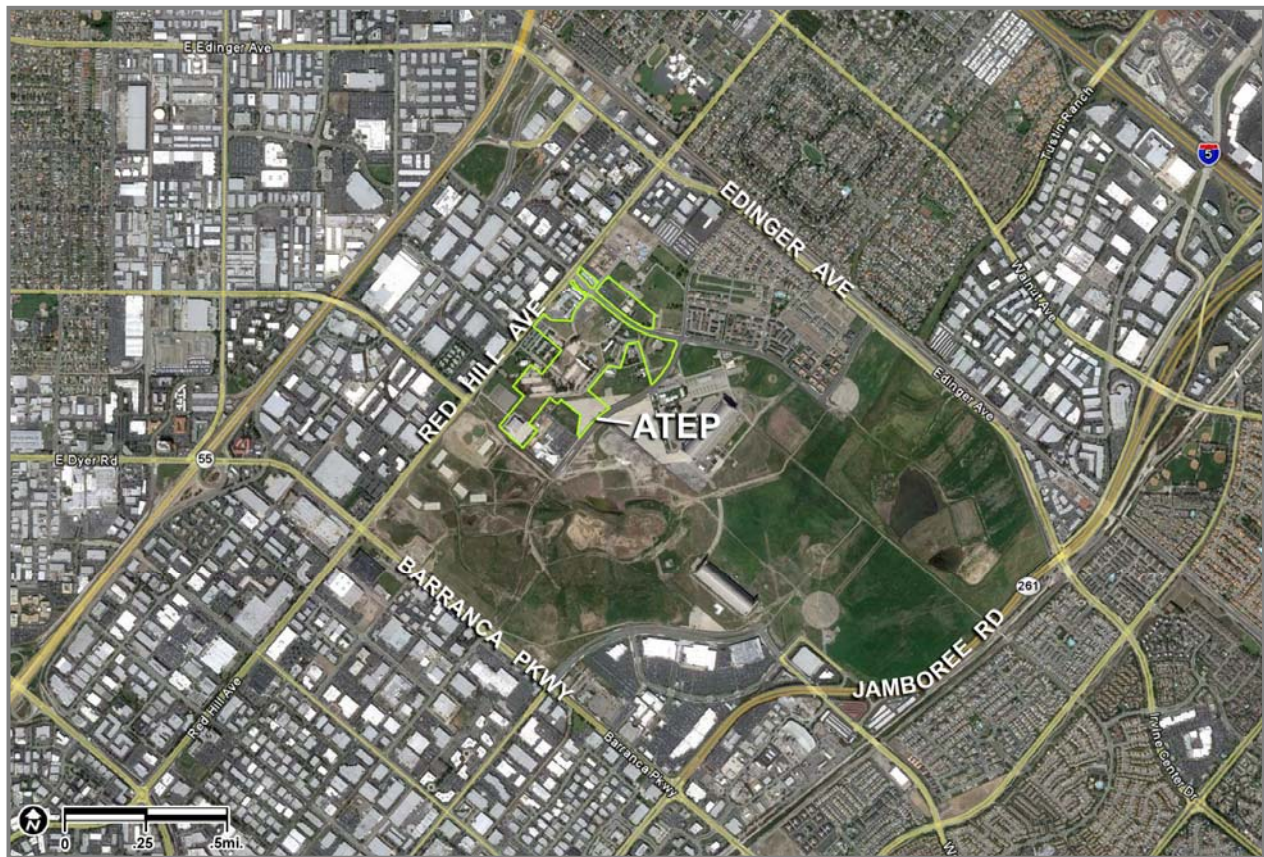


FIGURE 2-8
ATEP AERIAL VIEW

2.6.2 Existing Programs and Facilities

ATEP opened in 2007 and operates as a one-acre campus in five buildings totaling about 15,000 GSF. ATEP currently serves a student population of 540. The existing ATEP campus facilities are located just east of Red Hill Avenue at the intersection of Lansdowne Road and Valencia Avenue, at the northernmost portion of the ATEP property (see Figure 2-9).

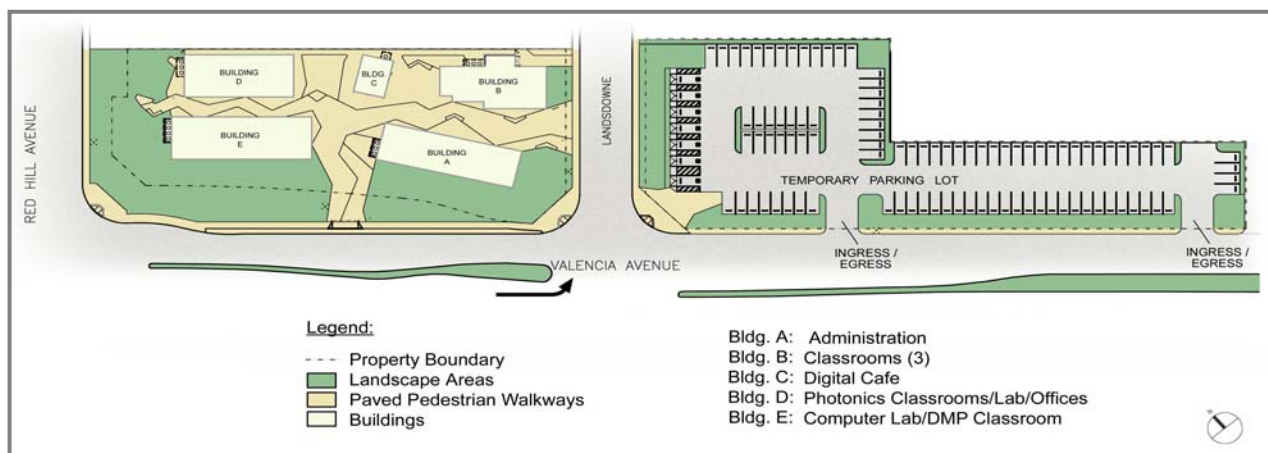


FIGURE 2-9
ATEP EXISTING CAMPUS PLAN

Courses offered at ATEP include Technology Training, CAD/CAM Design Software, Business Improvement and Organizational Development, and Manufacturing Process Control and Improvement. The five buildings at the northwest corner of Valencia Avenue and Lansdowne Road house classrooms, laboratories, offices, food services, a high-end computer lab, a digital (Wi-Fi) café, a virtual library center, a design modeling and prototyping lab, an optics and photonics lab, and support space.

On the northeast corner of Valencia Avenue and Lansdowne Road, a 104-space parking lot serves the existing ATEP campus. An additional overflow parking lot serves the ATEP campus at the along the easterly side of Hope Drive. Together the existing buildings and parking lot areas total just over one acre. Bus transit stops are located on both sides of Red Hill Avenue at Valencia Avenue.

In addition to the existing campus facilities, two military buildings and other ancillary structures remain on the ATEP property, south of Valencia Avenue. Those structures and related roadways, utility infrastructure, and landscaping are currently in various phases of demolition.

2.6.3 Approved ATEP Building and Site Improvement Projects

Long Range Academic and Facilities Plan (LRP/LRAP)

ATEP was conceived as an education-oriented development as described in the MCAS Tustin Specific Plan. In November 2008, the SOCCCD Board of Trustees approved the ATEP Long Range Academic and Facilities Plan (LRP) and Long Range Academic Plan (LRAP). The district prepared the LRP to guide planning and development efforts for the 68.4-acre ATEP campus. As described in the LRP, it is intended to be an enduring but dynamic academic and facilities plan that establishes a framework for developing and operating the overall ATEP campus. The LRP may be reviewed and updated as needed to keep it flexible and adaptable as future opportunities may arise. The campus facilities described in the LRP total 893,851 square feet of classrooms, laboratories, administrative office space, incubator office space, other education-oriented and ancillary support facilities, campus circulation system and other onsite improvements for the ATEP campus.

The LRAP describes the plan for education, including academic programs that could be offered at the ATEP campus, and which will be accommodated by the facilities described in the LRP. Together, the LRP and LRAP assure that the ATEP Campus will be an education-oriented development.

Phase 3A Concept Plan

The SOCCCD Board of Trustees approved the Phase 3A Concept Plan in March 2009 followed by the City of Tustin's approval in July 2010. The Phase 3A Concept Plan implements a portion of the LRP/LRAP by providing more detail on the circulation, drainage, landscaping and other construction elements of the future phases of the ATEP campus. The approved Concept Plan includes the phased development of approximately 305,000 gross square feet of building area on approximately 29 acres primarily located on the northern portion of the ATEP campus adjacent to Valencia Avenue.

As part of the continued implementation of the ATEP LRP/LRAP and Phase 3A Concept Plan, the 2011 IVC FMP identifies one multi-story facility of 30,000 gross square feet (GSF), which would be constructed in the area covered under the Phase 3A Concept Plan. ATEP's LRP and Phase 3A Concept Plan land use map is provided in Figure 2-10. The district has also discussed the construction of two 30,000 GSF single story buildings in public Board of Trustees hearings and programming meetings with faculty and staff. These buildings and related site work require district approval of plans. The City of Tustin also has certain review and/or approval rights of plans per the conveyance agreement for the ATEP campus (see Chapter 4.0, *ATEP Analysis*).

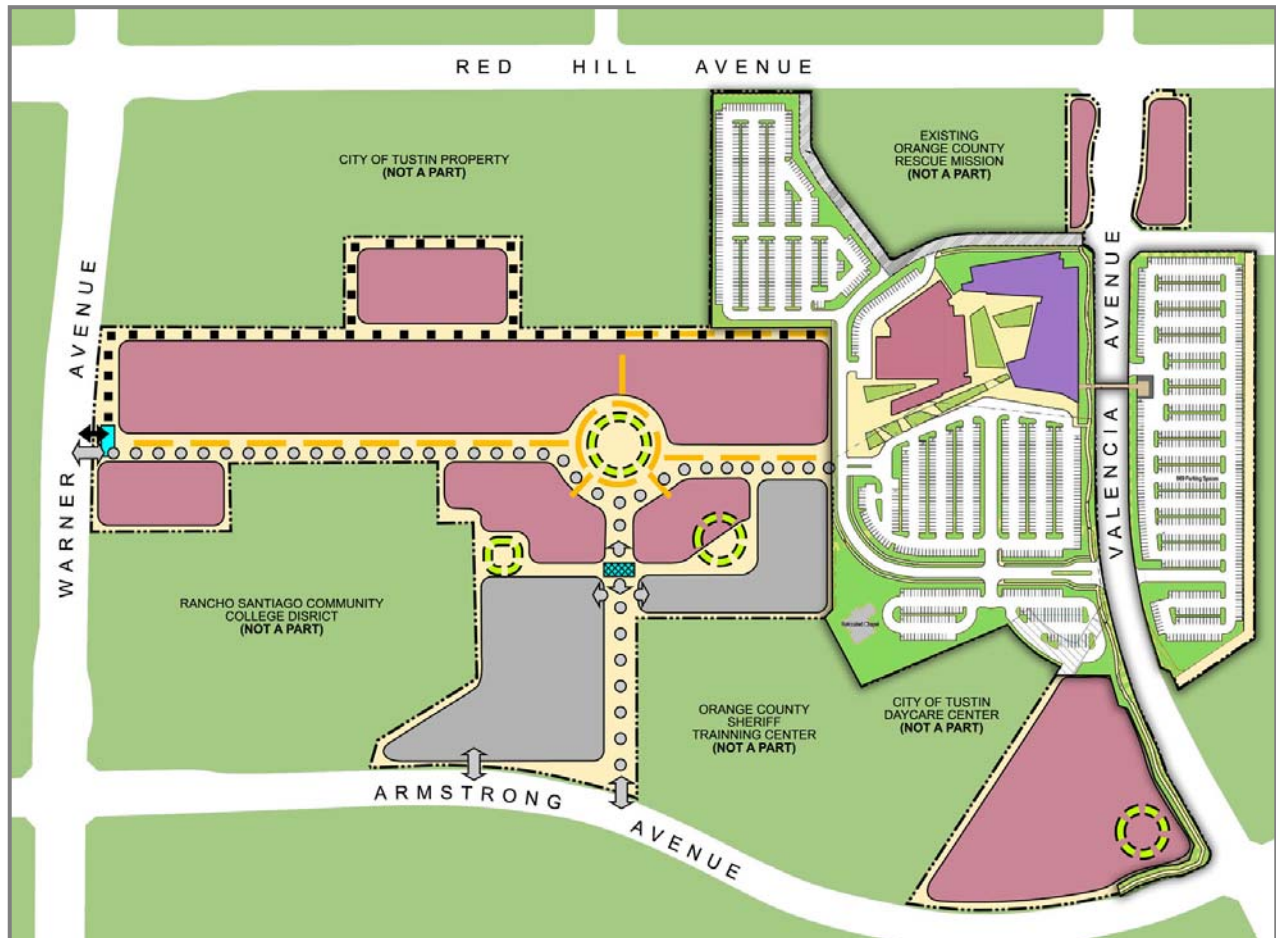


FIGURE 2-10
ATEP LONG RANGE PLAN AND PHASE 3A CONCEPT PLAN

As indicated in section 2.1 (*Project Background*), ATEP was previously subject to a separate site planning and approval process as part of the MCAS Tustin Specific Plan and Reuse Plan (MCAS Tustin Specific Plan), and has been programmatically reviewed under CEQA under the MCAS Tustin Specific Plan FEIS/EIR. Therefore, the ATEP campus is not a focus of this Program EIR analysis. Summaries of its site history and prior approvals are provided in Chapter 4.0 (*ATEP Analysis*).

2.7 REQUIRED APPROVALS

This Program EIR will serve as the CEQA compliance documentation for the South Orange County Community College District (the lead agency), as well as any State or local agencies with discretionary decisions associated with the Proposed Project. These agencies may include, but are not limited to, the agencies listed in Table 2-3 below.

TABLE 2-3
STATE AND LOCAL AGENCY PERMITTING ACTIONS OR APPROVALS

Agency	Permitting Actions or Approvals
South Orange County Community College District (Lead Agency)	• Certification of a Final Program EIR and other CEQA related actions and approvals • Approval of Design/Build contracts
California Department of General Services, Division of the State Architect	• Approval of architectural plans
California Department of Fish and Game	• To be determined based on Saddleback Loop Road jurisdictional determination and permit requirements
California Regional Water Quality Control Board	• To be determined based on Saddleback Loop Road jurisdictional determination and permit requirements
Cities of Irvine and Mission Viejo	• City of Mission Viejo slope easement (Saddleback Loop Road project) • Encroachment permits for public infrastructure improvements
City of Tustin	• Grading, Site Design and Development review per the conveyance agreement for the ATEP campus • Encroachment permits for public infrastructure improvements
Orange County Flood Control District	• Encroachment permit for any work within or adjacent to a Flood Control District right-of-way (Saddleback Loop Road project)
U.S. Army Corps of Engineers	• To be determined based on Saddleback Loop Road jurisdictional determination and permit requirements
U.S. Fish and Wildlife Service	• To be determined based on Saddleback Loop Road permit requirements

3.1 ENVIRONMENTAL ANALYSIS

3.1.1 INTRODUCTION

In June 2011, the district prepared and circulated a CEQA Initial Study and Environmental Checklist along with the Notice of Preparation (NOP) of a draft EIR (see Appendix A). An Initial Study is a preliminary analysis prepared by a Lead Agency to determine the appropriate environmental analysis document to be prepared under CEQA. If the Initial Study concludes that the project without mitigation may have a significant effect on the environment, an EIR should be prepared. The Initial Study also is used to focus the EIR on the potential significant effects and allows the Lead Agency to avoid unnecessary analysis of those effects that are not potentially significant. Based on preliminary findings in the Initial Study, the district determined that a program EIR must be prepared for the 2011 FMPs, focusing on the following environmental issues:

- Aesthetics
- Air Quality
- Cultural Resources
- Greenhouse Gas Emissions
- Hydrology and Water Quality
- Transportation/Traffic
- Agriculture and Forest Resources
- Biological Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Noise
- Utilities and Services Systems

Technical studies for traffic, air quality, greenhouse gas emissions, noise and cultural resources have been prepared to assess the impacts of implementation of the 2011 FMPs. For each of the above environmental concerns, this EIR includes a description of the existing setting, potential impacts of the implementation of the FMPs, and recommended mitigation measures for any significant impacts.

The Initial Study analysis found that effects under several environmental topics would have no potential for occurrence, or that potential effects would be less than significant. Therefore, those environmental topics require no further analysis in the program EIR, as follows:

- **Land Use and Planning** – Per the Initial Study, only the issue of compatibility with applicable habitat conservation plans or natural community conservation plans was preliminarily deemed potentially significant. However, the issue of whether the proposed 2011 FMPs conflict with the Orange County Central-Coastal Natural Community Conservation Plan and Habitat Conservation Plan (NCCP/HCP) is addressed in Section 3.8 (*Biological Resources*), in the context of the potentially affected resources.
- **Mineral Resources** – Per the Initial Study, no mineral resources of value have been identified in the vicinity of the campuses. The project area has not been designated as a Significant Mineral Aggregate Resources Area by the State Department of Conservation. Therefore, no impacts from the loss of mineral resources will occur.
- **Population and Housing** – Per the Initial Study, implementation of the FMPs would not induce substantial population growth in region, nor would projects on the campuses displace people or housing. Therefore, no impacts related to population and housing would occur.
- **Public Services** – Per the Initial Study, the campuses are adequately served by the OCFA for fire protection services, and the Orange County Sheriff's Department under contract with the City of Mission Viejo, the Irvine Police Department, and Saddleback College and Irvine Valley College Police Departments for police protection. Implementation of the FMPs would not increase demand for schools or parks. Therefore, impacts related to public services would be less than significant.

- **Recreation** – Per the Initial Study, the FMPs include on-campus recreational facilities that will serve the needs of students and the local community. Implementation of the FMPs would not result in increases in demand for the use of local and regional park facilities, and would not require the construction of new recreational facilities outside the campuses. Therefore, impacts related to recreational facilities would be less than significant.

3.1.2 ORGANIZATION AND CONTENT

To assist the reader in comparing information about the various environmental issues, each analysis section presents information under the following headings:

- **Existing Setting** – This introductory section describes the existing conditions or environmental baseline of the campuses and their vicinities. In accordance with Section 15125 of the State CEQA Guidelines, both the local and regional existing settings are discussed as they existed at the time the NOP was published in June 2011. The environmental baseline is the basis for documenting the nature and extent of impacts anticipated to result from project implementation.
- **Impact Significance Criteria** – Section 15126.2 of the CEQA Guidelines requires that an EIR “*identify and focus on the significant environmental effects*” of a proposed project. “Effects” and “impacts” are synonymous under CEQA and are used interchangeably in this EIR (Guidelines §15358). A “significant effect” or “significant impact” on the environment means “*a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project*” (Guidelines §15382).

Impact significance criteria, or thresholds of significance, are used to determine whether the Proposed Project may have a significant environmental effect. Thresholds are an analytical tool for judging significance, and may vary with different project characteristics and environmental settings.

In determining whether an impact is “significant” within CEQA's definition, this EIR relies on the 2011 FMP documentation, the environmental threshold standards of the State CEQA Guidelines (Appendix G), and relevant environmental standards of regulatory agencies. An effort has been made to avoid overly subjective significance criteria that are not based on specific CEQA policies and/or generally accepted thresholds upon which significance can be determined. Each of the significance criteria serves as the basis for the determination whether a project impact is significant.

- **Impacts Found to be Less Than Significant** – Section 15128 of the CEQA Guidelines requires that “*an EIR shall 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 EIR.*” Based on the impact significance criteria and supporting data for a given issue, this section of the environmental analysis includes a determination that the Project will either have no measurable impact, or it will have a potential impact that is less than significant.
- **Potential Impacts and Mitigation Measures** – Environmental analysis may determine that the Proposed Project may have potential impacts (direct, indirect, growth-inducing, short-term, and/or long-term). Where the analysis in this section demonstrates (without undue speculation) that the Proposed Project may have a substantial or potentially substantial adverse impact on physical conditions within the area affected by the project, that conclusion is noted and:

- o Feasible Project-specific mitigation measures are identified that will minimize the significant effects and, in most cases, reduce them to less than significant levels; and/or
 - o Where there are no feasible mitigation measures that can reduce the significant effect to less than significant levels, the significant effect will be identified as one that will result in "significant unavoidable adverse impacts."
- **Level of Significance after Mitigation** – For impacts requiring mitigation, this discussion summarizes the level of significance of each impact after the mitigation measures are applied.
- **Cumulative Impacts** – Section 15355 of the State CEQA Guidelines defines "cumulative impacts" as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Section 15130(a) of the Guidelines requires that an EIR discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable. Section 15130(a) further provides that *"Where a lead agency is examining a project with an incremental effect that is not 'cumulatively considerable,' a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable."*

Section 15065(a)(3) of the State CEQA Guidelines defines "cumulatively considerable" as meaning that *"the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects."* Guidance regarding the scope of the cumulative impacts discussion is provided in Section 15130(b)(1), which indicates that an adequate discussion of significant cumulative impacts must be predicated on either:

- 1) A list of past, present, and probable future projects producing related or cumulative impacts, including applicable projects outside the control of the lead agency; or
- 2) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact.

By their nature, some cumulative effects might vary in their geographic scopes and may encompass few or none of the related projects. Therefore, each subsequent section of this environmental analysis identifies the geographic scope of the area of potential cumulative effects.

3.2 TRAFFIC AND CIRCULATION

Stantec prepared the *South Orange County Community College District Master Plan for Saddleback College Campus and Irvine Valley College Campus Traffic Study* (Traffic Study) in March 2012 to assess the traffic impacts of implementation of the proposed FMPs. Appendix B includes the Traffic Study, including the results of project-related traffic modeling. Following is a summary of the major findings and recommendations. Appendix B should be consulted for technical descriptions, modeling methodologies, and detailed traffic projections.

3.2.1 EXISTING SETTING

3.2.1.1 Definitions

Performance criteria established by local governments are used to identify future level of service (LOS) deficiencies on the study area circulation system. LOS for roadway linkages is designated on a scale of “A” through “F” with LOS A representing free flow conditions and LOS F representing severe traffic congestion. These LOS conditions are associated with volume-to-capacity (V/C) ratios for arterial roads, as shown in Table 3-2.1. LOS D is the performance standard for the intersections in the study areas, except for seven intersections along Crown Valley Parkway between the I-5 Freeway and Marguerite Parkway in Mission Viejo where LOS E is acceptable (these intersections are governed by the standards of the Orange County Congestion Management Plan rather than the local General Plan).

TABLE 3.2-1
VOLUME/CAPACITY RATIO LEVEL OF SERVICE RANGES

Level of Service (LOS)	Volume/Capacity (V/C) Ratio Range Arterial Roads
A	0.00 – 0.60
B	0.61 – 0.70
C	0.71 – 0.80
D	0.81 – 0.90
E	0.91 – 1.00
F	Above 1.00

The assessment of intersection performance involves the use of peak hour intersection capacity utilization (ICU) values. The ICU ranges that correspond to LOS A through F are the same as the V/C ranges shown in Table 3-2.1 for arterial roads.

3.2.1.2 Existing Circulation Network

The Traffic Study evaluated a total of 30 intersections, located in the cities of Laguna Niguel and Mission Viejo, in the vicinity of the Saddleback College campus. A total of 43 intersections, all in the city of Irvine, were evaluated in the vicinity of IVC. The initial evaluation described existing the LOS and ICU at each intersection; the evaluation showed that all 73 intersections presently operate at an LOS C or above. A complete list of the subject intersections, and their respective LOS and ICU calculations, is provided in Table 3-1 of the Traffic Study. Maps of study area intersections near Saddleback College and IVC are shown in Figures 3.2-1 and 3.2-2, respectively.

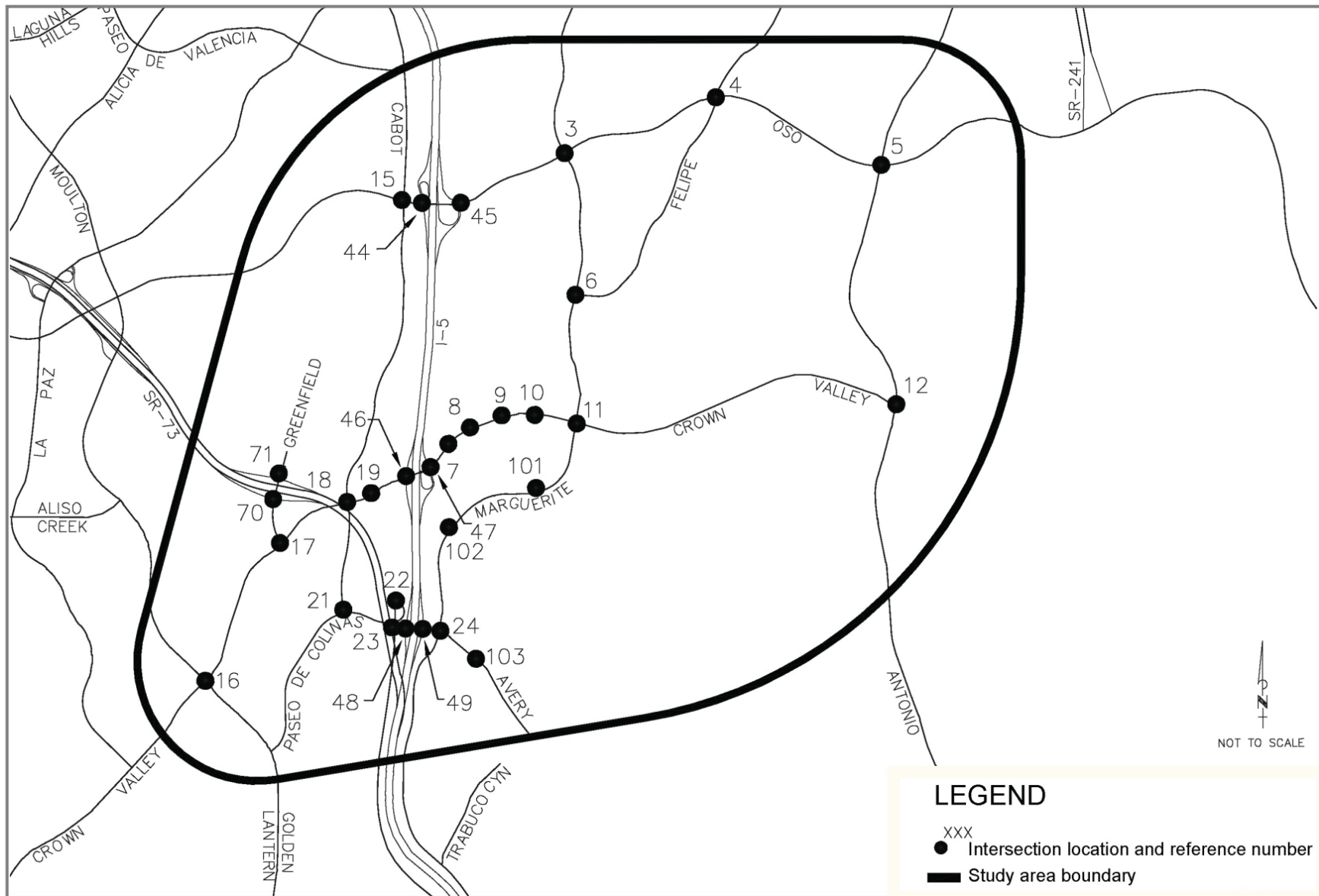


FIGURE 3.2-1
STUDY AREA MAP – SADDLEBACK COLLEGE

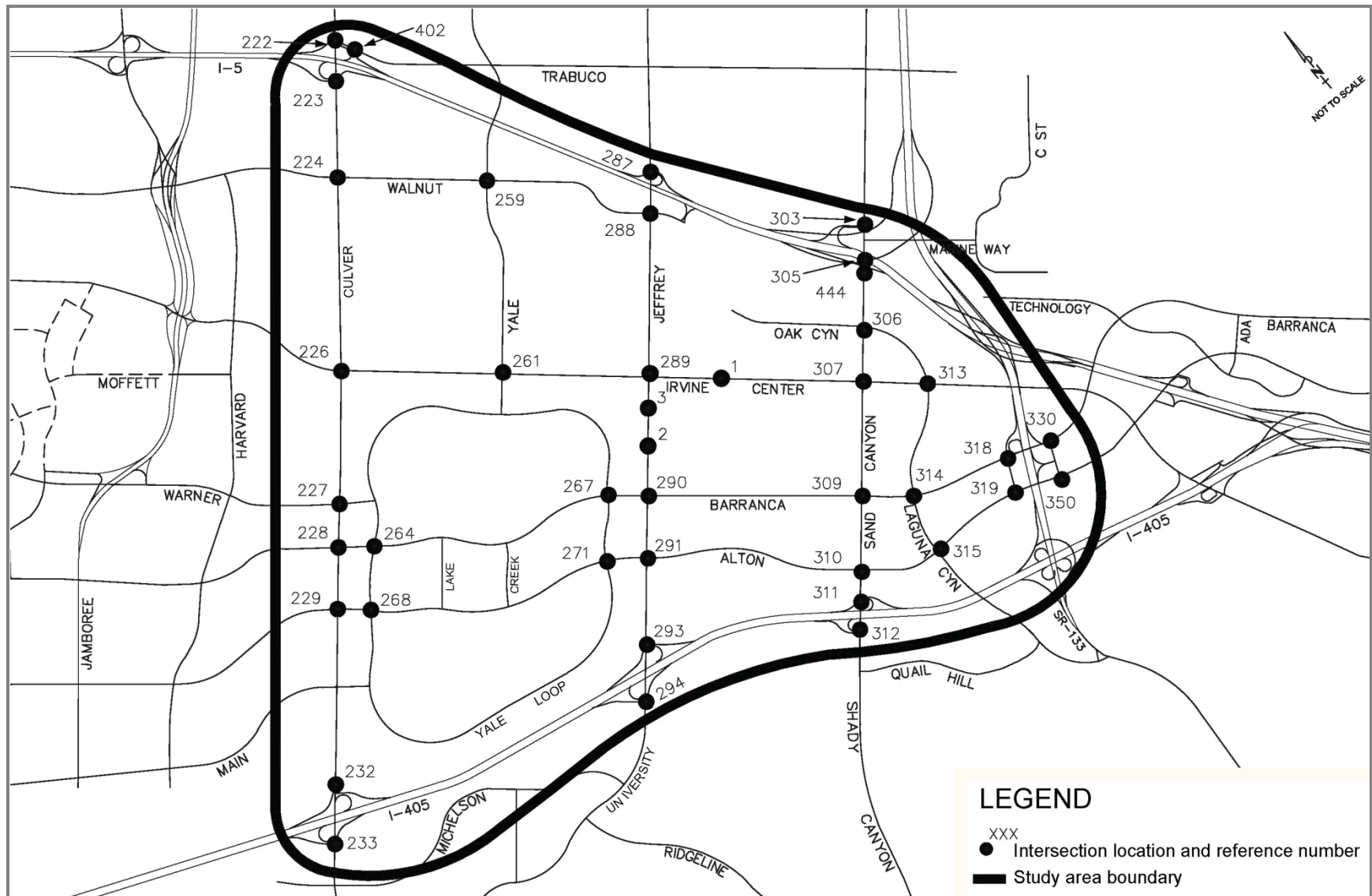


FIGURE 3.2-2
STUDY AREA MAP – IRVINE VALLEY COLLEGE

Campus Access

Access to the Saddleback College campus is provided via three signalized driveway entrances. Two of the driveways are located on Marguerite Parkway between Crown Valley Parkway and Avery Parkway—one directly across Medical Center Road and the other across the College Center shopping center driveway. The third driveway is on Avery Parkway across from Plata Place. Both Marguerite Parkway and Avery Parkway are four-lane secondary arterials. College Drive, a two-lane internal road, provides circulation within the campus.

IVC has three access points. The main entrance into the campus is signalized and located on Irvine Center Drive southeast of Jeffrey Road. The other two existing driveways are on Jeffrey Road. One driveway on Jeffrey Road is just southwest of Irvine Center Drive and is restricted to right-turn in and out movements. The second driveway is northeast of Barranca Parkway and is a full-access signalized intersection. A fourth driveway, also signalized, is planned to be located on Barranca Parkway just southeast of Jeffrey Road across the Shadow Oaks apartment complex driveway. The Barranca Parkway access is expected to be constructed by 2015, but to allow for a more conservative analysis of traffic impacts is not assumed in this report to be in place until year 2030 conditions. A separate traffic analysis is being carried for this access point. Irvine Center Drive and Jeffrey Road are both six-lane major arterials, and Barranca Parkway is a four-lane primary arterial.

3.2.1.3 Parking Demand and Supply

The Saddleback College campus currently has 4,436 permanent parking spaces located in 17 surface parking lots. The IVC campus currently has 2,262 permanent parking spaces located in 8 surface parking lots. An additional 150 spaces are located on a gravel surface adjacent to the sports fields. At both campuses, parking availability is considered adequate, with parking shortages only occurring for limited periods of time at the start of each academic term. More remotely located parking lots remain underutilized for most of the year.

3.2.1.4 Alternative Transportation & Pedestrian Connections

The Orange County Transportation Authority (OCTA) provides bus service throughout Orange County, including the Saddleback College and IVC campuses. OCTA bus routes serving the Saddleback College campus include Routes 85 (connecting Mission Viejo to Dana Point), 91 (Laguna Hills to San Clemente), 191 (Mission Viejo to San Clemente), 212 (Irvine to San Juan Capistrano), and 216 (San Juan Capistrano to Costa Mesa). Metrolink commuter rail service is provided from the Laguna Niguel/Mission Viejo Station, 0.5 mile west of the campus. Routes 85 and 91 connect the campus to the Station. A shuttle service connects six stops located on the Saddleback College campus.

OCTA bus routes serving the IVC campus include Routes 66 (Huntington Beach to Tustin), 70 (Sunset Beach to Tustin), and 175 (serving Irvine). Metrolink commuter rail service is provided from Irvine Station, 2.8 miles northwest of the campus, and Irvine Station, 2.8 miles southeast of the campus. Route 70 connects the campus to Tustin Station; there is currently no direct bus service to Irvine Station.

A system of on-campus walkways and off-campus sidewalks provide pedestrian connectivity in the area. From the Saddleback College campus, walkways are present along each of the entries to the site, connecting to Avery and Marguerite Parkways. From the IVC campus, walkways provide direct connections to Irvine Center Drive and Jeffrey Road.

3.2.2 IMPACT SIGNIFICANCE CRITERIA

Based on the criteria presented in the CEQA Guidelines, Appendix G (Environmental Checklist), significant transportation/traffic impacts would result if implementation of the FMPs would:

- *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.*
- *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.*
- *Result in a change in air traffic patterns, including an increase in traffic levels or a change in location that results in substantial safety risks.*
- *Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).*
- *Result in inadequate emergency access.*
- *Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.*

3.2.3 IMPACTS FOUND TO BE LESS THAN SIGNIFICANT

3.2.3.1 Air Traffic

- *The Project would not result in a change in air traffic patterns, including an increase in traffic levels or a change in location that results in substantial safety risks.*

John Wayne Airport, located 14 miles northwest of Saddleback College and 4.5 miles west of IVC, serves commercial, general aviation, commuter, and military aircraft. Due to the airport's distance from the campuses, the implementation of the FMPs would not result in any change in air traffic patterns. There will be no project-related effects on airport activities or air traffic patterns.

3.2.3.2 Traffic Hazards

- *The Project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).*

Improvements related to vehicular circulation included in the FMP for Saddleback College include:

- A new, easterly extension of the loop road along the eastern perimeter of the campus. Much of the eastern portion of the existing College Drive loop road is proposed for realignment to route traffic to the perimeter. A parallel portion of the existing College Drive loop road would be closed off and integrated into the pedestrian circulation system. The proposed Loop Road alignment, sitework, and infrastructure project is approved for planning.
- Construction of a new 1,500-space multi-level parking structure in the western portion of the campus along College Drive East.
- Construction of a new 960-space surface parking lot near the existing football stadium and practice fields.

Improvements related to vehicular circulation included in the FMP for IVC include:

- Development of a new 650-space surface parking lot and 800-space parking structure in the southwest corner of the campus, replacing the existing agricultural field.
- Paving of the existing unimproved parking area south of the soccer and practice fields to accommodate 185 parking spaces.
- Creation of a new entrance/exit located along Irvine Center Drive (east of the current entry on this street), to operate as a secondary right-in/right-out only drive.
- Renovation of the primary Irvine Center Drive entry plaza bus stop.
- Construction of a new entrance/exit drive from Barranca Parkway (now in the final engineering phase).

All proposed improvements will be designed to the applicable civil and traffic engineering standards by appropriately licensed professionals. Where appropriate, designers will coordinate with adjacent landowners and local governments to ensure that design features do not create hazardous conditions. Most proposed development will also be subject to review by the Division of the State Architect.

No incompatible uses are proposed for the campuses. The campuses are designed to encourage multi-modal transportation uses, including auto, pedestrian, bicycle, and public transportation systems. No adverse impacts related to hazards created by design features or incompatible uses will result from implementation of the FMPs.

3.2.3.3 Emergency Access

- *The Project would not result in inadequate emergency access.*

Both campuses have an existing system of internal roadways with multiple connections to arterial streets. These roadways are of adequate design to permit emergency vehicles access to central locations within the campus. Implementation of the FMPs would enhance emergency access through the addition of a loop road at the Saddleback College campus and new access points from Barranca Parkway and Irvine Center Drive at the IVC campus. No adverse impacts on emergency access will result from implementation of the FMPs.

3.2.3.4 Public Transit, Bicycle, and Pedestrian Facilities

- *The Project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.*

Implementation of the FMPs would not conflict with alternative transportation policies, plans, or programs of the SOCCCD or the Orange County Transportation Authority. The FMPs provide enhanced transit drop-off areas to encourage the use of public transportation, and the pedestrian nature of the two campus cores is preserved and enhanced by improved hardscape and landscape features. The construction of a loop road on the Saddleback College campus will remove vehicles from more central areas of the campus and create an expanded pedestrian zone. Bicycle racks are also located on both of the campuses. No adverse impacts on public transit, bicycle, or pedestrian facilities will result from implementation of the FMPs.

3.2.4 TRAFFIC STUDY ASSUMPTIONS AND METHODOLOGIES

3.2.4.1 Analysis Scope and Methodology

The Traffic Study identifies potential impacts of implementation of the FMPs based on existing traffic conditions and short-term (2015/2016) and long-term (2030) future traffic conditions. Existing traffic conditions are based on observed traffic counts, and future traffic conditions are projected using the South County Sub-Area Model (SCSAM) for the Saddleback College campus analysis area and the Irvine Transportation Analysis Model, Version 8.4-10 (ITAM 8.4-10) for the IVC campus analysis area.

The forecasts for the Saddleback College campus are based on the SCSAM version used for the Laguna Niguel Gateway Specific Plan Update, and for the Irvine Valley College campus on the ITAM version used for the Irvine Planning Area 6 proposed development changes. For purposes of this traffic analysis, full buildout of the Saddleback College and IVC campuses have been assumed to occur in 2030 to be consistent with SCSAM and ITAM data. Even though the buildout year for the FMP is 2031, there is a negligible change in background traffic due to a one year difference for the year 2030 used in this analysis. Also for Saddleback College, 2030 is used and not 2035 as in the Laguna Niguel traffic study because there is only minor growth between 2030 and 2035 SCSAM assumptions.¹

Major development projects approved in and around the IVC campus analysis area are included in the future traffic conditions analyzed here along with any circulation system improvements related to those approved projects.

In 2003, the North Irvine Transportation Mitigation (NITM) Program was established to provide a funding mechanism for transportation improvements needed in north Irvine, including certain locations in the traffic analysis study area defined for the IVC campus analysis. The circulation system improvements that are programmed to be fully funded by the NITM Program have been included in the 2015 and 2030 scenarios analyzed in this study for the IVC campus. Circulation system improvements that are only partially funded by the NITM Program have not been assumed in this analysis.

Baseline Assessment

CEQA requires the baseline for assessing environmental impacts to be the existing conditions at the time the environmental document for the project is prepared. The existing intersection LOS summary presented in Table 3-1 of the Traffic Study indicates enough capacity is available to accommodate the proposed project with all intersections operating at LOS C or better in both the Saddleback College and IVC campus study areas. Therefore, no mitigation would be necessary if the full scope of the project were built-out in the year 2012. However, it is noted that any comparative traffic analysis of full buildout of the proposed project versus existing traffic conditions is hypothetical because the actual buildout timeframe of the project for each campus is approximately 18 years. The analysis provided in the scenarios below more accurately predict actual traffic impacts associated with the project.

Traffic Analysis Scenarios

Table 1-1 of the Traffic Study summarizes the student population and faculty/staff for the no-project and with-project traffic analysis scenarios under future (2015/2016 and 2030) conditions. The existing student population and number of faculty/staff are assumed for no-project conditions, and

¹ La Pata Avenue Gap Closure and Camino Del Rio Extension Traffic Study, Austin-Foust Associates, Inc., December 2009.

future 2030 with-project conditions are assumed to have buildout of the FMPs for both campuses. The short-term 2015 no-project and with-project forecasts for the Irvine Valley College campus are based on ITAM 2015. The baseline (no-project) short-term 2016 forecasts for the Saddleback College Campus area are based on applying growth factors to existing counts, a methodology consistent with the La Pata Traffic Study. While the FMP presents short-term enrollment and faculty/staff numbers at each campus, for worst-case analysis purposes, the Saddleback College campus was assumed to be built out per the FMP for 2016 with-project conditions. Therefore, the project traffic differences in 2030 were applied to 2016 baseline conditions.

Additional Analysis: Avery Parkway Access

As a special issue, an operations analysis is performed for Avery Parkway due to the Saddleback College project's impacts to the forecast deficiencies along this road. Using the Highway Capacity Manual (HCM) intersection analysis methodology, the LOS at an intersection location is determined based on the estimated average delay experienced by all traffic using the intersection. The vehicle delay ranges that correspond to LOS A through F as specified in the HCM (see Traffic Study Table 1-4).

Performance Criteria

Performance criteria are used in the Traffic Study to identify future LOS deficiencies on the study area circulation system. As discussed in Section 3.2.1.1, traffic LOS is designated "A" through "F" with LOS A representing free flow conditions and LOS F representing severe traffic congestion. Table 3.2-1 summarizes the V/C ranges that correspond to LOS A through F for arterial roads. Detailed performance criteria applied are stated in the Traffic Study (Table 1-3). The criteria include components for arterial roadways and intersections, and are based on LOS calculation methodologies and performance standards used by the cities in the study areas and by the OCTA as part of the CMP.

The intersection criteria involve the use of peak-hour ICU values. The ICU ranges that correspond to LOS A through F are the same as the V/C ranges shown in Table 3.2-1 for arterial roads. LOS D (ICU not to exceed 0.90) is the performance standard for the intersections in the study areas except for seven intersections along Crown Valley Parkway between I-5 Freeway and Marguerite Parkway in Mission Viejo where LOS E is acceptable (ICU not to exceed 1.00). These intersections are governed by the LOS standard established by the CMP, rather than local general plans.

The arterial roadway criteria for Irvine locations involve the use of average daily traffic (ADT) V/C ratios. The criteria is supplemented by the city of Irvine's Link Capacity Analysis guidelines which require that arterial deficiencies identified based on ADT V/C ratios be further examined using peak hour data. LOS D (V/C not to exceed 0.90) is the city of Irvine's performance standard for the locations of the arterial roadway system within the study area for the IVC campus. ADT volumes for the Saddleback College campus area are presented for informational purposes only and are not used in impact analysis.

Project Trip Generation

Tables 2-1 and 2-2 in Chapter 2.0 (*Project Description*) summarize the 20-year growth projections for Saddleback College and IVC. Of the four measures of campus growth, Full-Time Equivalent Students (FTES) and Full-Time Equivalent Faculty (FTEF) are the projections used in the Traffic Study to determine vehicle trip generation. Since the focus of the Traffic Study is on the student population that commutes to the campuses via car, the Traffic Study uses the FTES figures without online students since those students do not generate traffic. This equates to a 14 percent reduction in the

FTEF for Saddleback College, and an 11 percent reduction for IVC. FTEF figures are not subject to reduction.

The 2015 and 2030 trip generation for the FMPs under the no-project and with-project traffic analysis scenarios is summarized in Table 2-1 of the Traffic Study. The modest growth at Saddleback College in 2016 is not shown here. As previously discussed under Traffic Analysis Scenarios, above, the Saddleback College campus was assumed for worst-case analysis purposes to be built-out per the applicable FMP for 2016 with-project conditions even though the FMP presents short-term enrollment and faculty/staff numbers for the campus. As indicated in Traffic Study Table 2-1 and according to the trip generation estimates, the FMPs at 2030 buildout are forecast to generate around 740 AM peak hour trips, 700 PM peak hour trips and 7,160 daily trips at Saddleback College, and about 500 AM peak hour trips, 450 PM peak hour trips and 5,130 daily trips at IVC.

Project Trip Distribution

Trip distribution patterns for each campus project site were developed using the SCSAM and ITAM traffic models and are presented in Traffic Study Figures 2-3 and 2-4 for year 2030. The trip distribution patterns are based on each model's distribution of daily project traffic. These percentages differ slightly in the peak hours, and the traffic models use the individual peak hour distribution patterns to assign peak hour trips.

3.2.5 POTENTIAL IMPACTS AND MITIGATION MEASURES

- *The Project could 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.*
- *The Project could 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.*

3.2.5.1 Near-Term Conditions (Year 2015/2016)

Average Daily Traffic Volumes and Levels of Service

Year 2015 no-project and with-project ADT V/C ratios for the IVC campus study area are illustrated in Traffic Study Figures 4-2 and 4-3, respectively. Based on the ADT V/C performance criteria and impact thresholds outlined in Section 3.2.4, above, for the IVC campus study area, no arterial roadway segment is significantly impacted by IVC campus development under 2015 with-project conditions. As noted under *Performance Criteria* in Section 3.2.4, ADT V/C ratios are not used for impact analysis purposes at the Saddleback College campus.

Peak Hour Intersection Levels of Service

Traffic Study Figures 4-4 and 4-5 illustrate the intersection locations that were analyzed based on year 2015/2016 conditions. Year 2015/2016 no-project and with-project AM and PM peak hour ICU values are summarized in Traffic Study Table 4-1 (actual turn volumes and ICU calculation worksheets are included in Appendix A of the Traffic Study). Based on the intersection LOS performance criteria and impact thresholds outlined in Section 3.2.4, above, no intersection location

analyzed in the study areas of either Saddleback College or IVC is adversely impacted by the Proposed Project in the year 2015/2016 ICU analysis.

3.2.5.2 Buildout Conditions (Year 2030)

Average Daily Traffic Volumes and Levels of Service

Year 2030 no-project and with-project ADT V/C ratios for the IVC campus study area are illustrated in Traffic Study Figures 5-2 and 5-3, respectively. Based on the ADT V/C performance criteria and impact thresholds discussed in Section 3.2.4, above, for the IVC campus study area, no arterial roadway segment is significantly impacted by IVC campus development under 2030 with-project conditions. As noted under *Performance Criteria* in Section 3.2.4, ADT V/C ratios are not used for impact analysis purposes at the Saddleback College campus.

Peak Hour Intersection Levels of Service

Traffic Study Figures 5-4 and 5-5 illustrate the intersection locations that were analyzed based on year 2030 conditions. Year 2030 no-project and with-project AM and PM peak hour ICU values are summarized in Traffic Study Table 5-1 (actual turn volumes and ICU calculation worksheets are included in Appendix A of the Traffic Study). Based on the intersection LOS performance criteria and impact thresholds in Section 3.2.4, above, two intersection locations, Marguerite Parkway at Crown Valley Parkway and Marguerite Parkway at Avery Parkway, are forecast to be adversely impacted by the Proposed Project in the year 2030 in the PM peak hour. Both intersections are projected to operate at an LOS F, with an ICU of 1.04 and 1.01, respectively. This exceeds the acceptable LOS E (maximum ICU of 1.00) for the Marguerite Parkway at Crown Valley Parkway intersection, and the acceptable LOS D (maximum ICU of 0.90) for the Marguerite Parkway at Avery Parkway intersection.

Both of these intersections are in the Saddleback College study area. The Proposed Project will contribute to these already deficient intersections (i.e., these intersections are forecast to operate at an unacceptable level without the Proposed Project). Based on Traffic Study Table 1-3, the Project will pay its fair share towards any improvements since it adds to a deficient ICU condition by .01 or greater (i.e., 1.0 percent or more).

2030 Project Mitigation/Participation in Improvements

Implementation of the FMP at Saddleback College significantly impacts Marguerite Parkway at Crown Valley and Avery Parkways in the PM peak hour under year 2030 conditions. As noted above, long-term traffic growth from Saddleback College will contribute to these intersections, which are forecast to operate at an unacceptable level without the Proposed Project. Thus, the impact at these intersections is cumulative (i.e., the project traffic has a significant contribution but does not cause the deficiency), and the proposed mitigation is for the district to participate in planning for and funding improvements to the intersections.

The project's participation in such improvements is a function of its contribution to traffic increases at the location. This can be calculated using ICU values. Since the project impacts the intersections at 2030 in the PM peak hour, the share is based on year 2030 volumes in the PM peak hour. The resulting project shares at the intersections, as calculated on page 5.9 of the Traffic Study, are:

- 23.1 percent at the Marguerite Parkway at Avery Parkway intersection
- 6.3 percent at the Marguerite Parkway at Crown Valley Parkway intersection

It is likely that any improvements necessary to mitigate the cumulative traffic impacts at the Marguerite/Avery intersection would require right-of-way acquisition. However, the SOCCCD acting

alone cannot obtain the right-of-way, nor implement the improvements. Therefore, the district's obligation at this intersection is to participate in fair-share funding of future improvements, as planned and programmed by the appropriate transportation planning agencies. OCTA is presently evaluating options for improvements in the vicinity of the intersection of Marguerite Parkway and Avery Parkway. Improvements to this intersection are proposed in conjunction with a much larger project along the I-5 freeway from El Toro Road in the north to SR-73 in the south, a total distance of approximately 6.5 miles. As of February 2012, an OCTA representative indicated that no detailed or conceptual plans for improvements had yet been prepared for the Marguerite/Avery intersection, nor had cost estimates for improvements to this area been developed.

There are presently no known proposals for feasible improvements to the intersection of Marguerite Parkway and Crown Valley Parkway. This intersection was improved in recent years in conjunction with development of the Ladera Ranch community, and is unlikely to be further expanded due to substantial physical constraints imposed by topography and local development.

Because there are currently no specific plans for improvements at either of the impacted intersections, Mitigation Measure TRA-1 requires the SOCCCD to coordinate with the relevant public agencies in planning for and funding improvements, on a fair-share basis, that would improve the LOS of the intersections to acceptable levels (LOS D at Marguerite/Avery and LOS E at Marguerite/Crown Valley).

Mitigation Measure TRA-1: *The South Orange County Community College District shall coordinate with the City of Mission Viejo, the Orange County Transportation Authority, and the California Department of Transportation in the identification, planning and fair-share funding of intersection improvements at Marguerite Parkway and Avery Parkway. The district shall participate in a fair-share funding program that would ensure improvement of the Marguerite/Avery intersection to a minimum Level of Service D by the year 2030. If feasible improvements are identified for the intersection of Marguerite Parkway with Crown Valley Parkway, the district shall likewise participate in a fair-share funding program that would ensure improvement of the Marguerite/Crown Valley intersection to a minimum Level of Service E by the year 2030.*

3.2.5.3 Additional Analysis: Avery Parkway Access

An operations analysis was performed for Avery Parkway due to the project's impacts to the forecast deficiencies along this road. Using the Highway Capacity Manual (HCM) intersection analysis methodology, the LOS at an intersection is determined based on the estimated average delay experienced by all traffic using the intersection. The vehicle delay ranges that correspond to LOS "A" through "F" as specified in the HCM are described in Table 1-4 of the Traffic Study.

With Year 2030 AM and PM peak hours being the worst-case scenario, the HCM-based intersection levels of service under with-project conditions are summarized in Table 6-1 of the Traffic Study (HCM intersection LOS calculation worksheets are included in Appendix B of the Traffic Study). The Traffic Study indicates that the only Avery Parkway intersection forecast to operate at an unacceptable level based on the HCM methodology is Marguerite Parkway and Avery Parkway. This is consistent with the LOS results based on the ICU methodology.

3.2.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

As discussed above, the Project would not result in near-term impacts related to traffic and no mitigation is required. At buildout, significant impacts would be present at two intersections near the Saddleback College campus; however, these impacts are a result of cumulative developments and

would occur even without the Project. Since the deficiencies would not be caused by the Project, these are not project-level impacts. Project-level traffic impacts are, therefore, below a level of significance.

Mitigation Measure TRA-1 addresses the Project's incremental contribution to two intersections that will be significantly impacted by cumulative traffic. If feasible intersection improvements are identified for the two significantly impacted intersections and implemented by 2030, the district's participation in fair-share funding programs will mitigate the Project's incremental traffic effects to below a level of significance. However, if intersection improvements cannot be assured by 2030, when Saddleback College will be fully developed, the cumulative traffic impacts and the Project's contribution thereto will remain significant. Notwithstanding the district's participation in fair-share funding programs, there is no known feasible mitigation for the cumulative traffic impacts that will occur at the intersection of Marguerite Parkway and Crown Valley Parkway. Without feasible mitigation, the cumulative traffic impacts and the Project's contribution thereto will remain significant.

3.2.7 CUMULATIVE IMPACTS

Each of the traffic and circulation effects evaluated in the preceding sections assumed project-related traffic plus cumulative project traffic. Without mitigation, significant cumulative impacts would be present at the Marguerite Parkway/Avery Parkway and Marguerite Parkway/Crown Valley Parkway intersections (i.e., these intersections are forecast to operate at an unacceptable level without the Proposed Project). A mitigation program underway by various transportation planning agencies would improve conditions at the Marguerite/Avery intersection. The district's participation in a fair-share funding program for those improvements would reduce the Project's incremental traffic effects to below a level of significance.

At the Marguerite/Crown Valley intersection, there are presently no improvement plans, so future deficiencies are expected to remain significant. Without feasible intersection improvements, the cumulative traffic impacts and the Project's contribution thereto will remain significant at the Marguerite/Crown Valley intersection.

3.3 AIR QUALITY

Urban Crossroads, Inc. prepared an Air Quality Impact Analysis (AQIA) in November 2011 analyzing the general construction and operational effects of the implementation of the 2011 FMPs at the IVC and Saddleback campuses. Appendix C includes the AQIA and the results of project-related emissions modeling. Following is a summary of the major findings and recommendations. Appendix C should be consulted for technical descriptions, modeling methodologies, and detailed air quality data.

3.3.1 EXISTING SETTING

3.3.1.1 Regulatory Background

Ambient Air Quality Standards

The federal Clean Air Act and the California Clean Air Act regulate air quality in the nation and the State, respectively. Both the State of California and the federal government have established health-based Ambient Air Quality Standards (AAQS) for certain air pollutants. The AAQS are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those “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.

The Clean Air Act Amendments of 1971 established National Ambient Air Quality Standards (NAAQS), with states retaining the option to adopt more stringent standards or to include other pollution species. The California Air Resources Board (CARB) and regional air quality districts monitor and regulate statewide air emissions for compliance with both the California AAQS (CAAQS) and the NAAQS, which have been developed for six air pollutants. These pollutants include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, suspended particulate matter (PM₁₀, PM_{2.5}), and lead. In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Along with primary and secondary AAQS, the State of California has established a set of episode criteria for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matter. These criteria refer to episode levels representing periods of short-term exposure to air pollutants, which actually threaten public health.

In the case of the South Coast Air Basin (SoCAB) and the project area, localized health effects are generally determined by compliance with the AAQS, which are a function of factors such as climate/meteorology, local pollutant sources and types, and locations of receptor populations. These factors are further discussed in the following sections.

Regional Air Quality Management

The project sites are located in the cities of Irvine, Mission Viejo, and Tustin, which are within the SoCAB and are subject to the rules and regulations imposed by the South Coast Air Quality Management District (SCAQMD) under the auspices of CARB. The SoCAB encompasses

approximately 6,745 square miles and includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The SoCAB is bordered by the Mojave Desert and Salton Sea Air Basins to the east, the San Diego Air Basin to the south, and the South Central Coast and San Joaquin Valley Air Basins to the north.

The SCAQMD operates monitoring stations in the SoCAB, develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. The Air Quality Management Plan (AQMP) forecasts attainment of ambient air quality standards inclusive of growth in population, employment, and vehicle miles traveled, as described in the Growth Management Chapter of the Southern California Association of Government's Regional Comprehensive Plan and Guide. The AQMP includes control measures and strategies to be implemented to attain state and federal ambient air quality standards. Following approval of the AQMP by CARB and the U.S. Environmental Protection Agency (USEPA), SCAQMD implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment. The SCAQMD's CEQA Air Quality Handbook (1993) provides guidance for the calculation of air pollutant emissions in the region.

3.3.1.2 Climate/Meteorology

The regional climate, including temperature, wind, humidity, precipitation, and amount of sunshine, significantly influence air quality in the SoCAB.

The annual average temperatures throughout the SoCAB vary from the low to middle 60s (degrees Fahrenheit). Due to a decreased marine influence, the eastern portion of the SoCAB shows greater variability in average annual minimum and maximum temperatures. January is the coldest month throughout the SoCAB, with average minimum temperatures of 47°F in downtown Los Angeles and 36°F in San Bernardino. All portions of the SoCAB have recorded maximum temperatures above 100°F.

Although the climate of the SoCAB can be characterized as semi-arid, the air near the land surface has a relatively moderate amount of moisture on most days because of the presence of a marine layer. This shallow layer of sea air is an important modifier of SoCAB climate. Humidity restricts visibility in the SoCAB, and the conversion of sulfur dioxide to sulfates is heightened in air with high relative humidity. The marine layer provides an environment for that conversion process, especially during the spring and summer months. The annual average relative humidity within the SoCAB is 71 percent along the coast and 59 percent inland. Since the ocean effect is dominant, periods of heavy early morning fog are frequent and low stratus clouds are a characteristic feature.

More than 90 percent of the SoCAB's rainfall occurs from November through April. The annual average rainfall varies from approximately 9 inches in Riverside to 14 inches in downtown Los Angeles. Monthly and yearly rainfall totals are extremely variable. Summer rainfall usually consists of widely scattered thunderstorms near the coast and slightly heavier shower activity in the eastern portion of the SoCAB with frequency being higher near the coast.

Due to its generally clear weather, about three-quarters of available sunshine is received in the SoCAB. The remaining one-quarter is absorbed by clouds. The ultraviolet portion of this abundant radiation is a key factor in photochemical reactions. On the shortest day of the year there are approximately 10 hours of possible sunshine, and on the longest day of the year there are approximately 14-1/2 hours of possible sunshine.

The importance of wind to air pollution is considerable. The direction and speed of the wind determines the horizontal dispersion and transport of the air pollutants. During the late autumn to early spring rainy season, the SoCAB is subjected to wind flows associated with the traveling storms moving through the region from the northwest. This period also brings five to ten periods of strong, dry offshore winds, locally termed “Santa Anas” each year. During the dry season, which coincides with the months of maximum photochemical smog concentrations, the wind flow is bimodal, typified by a daytime onshore sea breeze and a nighttime offshore drainage wind. Summer wind flows are created by the pressure differences between the relatively cold ocean and the unevenly heated and cooled land surfaces that modify the general northwesterly wind circulation over southern California. Nighttime drainage begins with the radiational cooling of the mountain slopes. Heavy, cool air descends the slopes and flows through the mountain passes and canyons as it follows the lowering terrain toward the ocean. Another characteristic wind regime in the SoCAB is the “Catalina Eddy,” a low level cyclonic (counterclockwise) flow centered over Santa Catalina Island which results in an offshore flow to the southwest. On most spring and summer days, some indication of an eddy is apparent in coastal sections.

In the SoCAB, there are two distinct temperature inversion structures that control vertical mixing of air pollution. During the summer, warm high-pressure descending (subsiding) air is undercut by a shallow layer of cool marine air. The boundary between these two layers of air is a persistent marine subsidence/inversion. This boundary prevents vertical mixing which effectively acts as an impervious lid to pollutants over the entire SoCAB. The mixing height for the inversion structure is normally situated 1,000 to 1,500 feet above mean sea level.

A second inversion-type forms in conjunction with the drainage of cool air off the surrounding mountains at night followed by the seaward drift of this pool of cool air. The top of this layer forms a sharp boundary with the warmer air aloft and creates nocturnal radiation inversions. These inversions occur primarily in the winter, when nights are longer and onshore flow is weakest. They are typically only a few hundred feet above mean sea level. These inversions effectively trap pollutants from vehicles, as the pool of cool air drifts seaward. Winter is therefore a period of high levels of primary pollutants along the coastline.

3.3.1.3 Sources and Types of Air Pollution

Mobile and Stationary Sources

The quality of the ambient air is affected by pollutants emitted into the air from stationary and mobile sources. Stationary sources can be divided into two major subcategories: point sources and area sources. Point sources consist of one or more emission sources at a facility with an identified location and are usually associated with manufacturing and industrial processing plants. Area sources are widely distributed and produce many small emissions.

Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources are a combination of emissions from automobiles, trucks, and indirect sources. Indirect sources are sources that by themselves may not emit air contaminants; however, they indirectly cause the generation of air pollutants by attracting vehicle trips or consuming energy. Examples of indirect sources include an office complex or commercial center that generates commuter trips and consumes energy resources through the use of electricity for lighting and space heating. Indirect sources also include actions proposed by local governments, such as redevelopment districts and private projects involving the development of either large buildings or tracts. In addition, indirect sources include those emissions created by the distance vehicles travel. Off-road sources include aircraft, ships, trains and self-propelled construction equipment.

Criteria Air Pollutants

The regulated air pollutants emitted into the ambient air by stationary and mobile sources are known as “criteria air pollutants” and are categorized as primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxides (NO_x), sulfur dioxide (SO₂) and most fine particulate matter (PM₁₀, PM_{2.5}), including lead (Pb) and fugitive dust, are primary air pollutants. Of these CO, SO₂, PM₁₀, and PM_{2.5} are criteria pollutants. ROG and NO_x are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reaction in the atmosphere. Ozone (O₃) and nitrogen dioxide (NO₂) are the principal secondary pollutants. Following is a summary of each of these primary and secondary criteria air pollutants, including their sources in the project area and their known health effects.

- **Carbon Monoxide (CO)** is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances (e.g., gasoline or diesel fuel). The primary adverse health effect associated with CO is the interference of normal oxygen transfer to the blood, which may result in tissue oxygen deprivation.
- **Reactive Organic Gases (ROGs)** are compounds comprised primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of ROG include the evaporative emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROG, but rather by reactions of ROG to form secondary pollutants.
- **Nitrogen Oxides (NO_x)** serve as integral participants in the process of photochemical smog production. The two major forms of NO_x are nitric oxide (NO) and nitrogen dioxide (NO₂). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO₂ is a reddish-brown irritating gas formed by the combination of NO and oxygen. NO_x acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens.
- **Nitrogen Dioxide (NO₂)** is a byproduct of fuel combustion. The principal form of NO₂ produced by combustion is NO, but NO reacts to form NO₂, creating the mixture of NO and NO₂ commonly called NO_x. NO₂ acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO₂ is only potentially irritating. There is some indication of a relationship between NO₂ and chronic pulmonary fibrosis. Some increase in bronchitis in children has also been observed at concentrations below 0.3 part per million (ppm). NO₂ absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO₂ also contributes to the formation of PM₁₀ (particulates having an aerodynamic diameter of 10 microns or 0.0004 inch or less in diameter).
- **Sulfur Dioxide (SO₂)** is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. Fuel combustion is the primary source of SO₂. At sufficiently high concentrations, SO₂ may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, SO₂ may do greater harm by injuring lung tissue.
- **Particulate Matter (PM)** consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulate are now recognized. Course particles, or PM₁₀, include that portion of the particulate matter with an aerodynamic diameter of 10 microns (i.e., ten one-millionths of a meter or 0.0004 inch) or less. Fine particles, or PM_{2.5}, have an aerodynamic diameter of 2.5 microns (i.e., 2.5 one-millionths of a meter or 0.0001 inch) or less. Particulate discharge into the atmosphere results primarily

from industrial, agricultural, construction, and transportation activities. However, wind action on the arid landscape also contributes substantially to the local particulate loading. Both PM₁₀ and PM_{2.5} may adversely affect the human respiratory system, especially in those people who are naturally sensitive or susceptible to breathing problems.

- **Fugitive Dust** poses primarily two public health and safety concerns. The first concern is that of respiratory problems attributable to the suspended particulates in the air. The second concern is that of motor vehicle accidents caused by reduced visibility during severe wind conditions. Fugitive dust may also cause significant property damage during strong windstorms by acting as an abrasive material agent (much like sandblasting activities). Finally, fugitive dust can result in a nuisance factor due to the soiling of proximate structures and vehicles.
- **Ozone (O₃)** is one of a number of substances called photochemical oxidants that are formed when reactive organic compounds (ROC) and NO_x (both byproducts of the internal combustion engine) react with sunlight. Ozone is present in relatively high concentrations in the SoCAB, and the damaging effects of photochemical smog are generally related to the concentrations of ozone. Ozone may pose a health threat to those who already suffer from respiratory diseases as well as healthy people. Additionally, ozone has been tied to crop damage, typically in the form of stunted growth and pre-mature death. Ozone can also act as a corrosive resulting in property damage such as the embitterment of rubber products.

Other general effects of air pollution are described in Appendix C.

3.3.1.4 Baseline Ambient Air Quality

Existing levels of ambient air quality and historical trends and projections in the project area are documented by SCAQMD using the monitoring station located at 26081 Via Para in Mission Viejo, approximately 5.5 miles northwest of Saddleback College and 6.6 miles east of IVC. Data from that station (see Table 2-3 of Appendix C) indicate the following:

- State 8-hour O₃ standards were exceeded 10 times in 2007, 25 times in 2008, and 14 times in 2009.
- State PM₁₀ standards were exceeded three times in 2007; there were no violations in 2008 or 2009.
- Federal PM_{2.5} standards were exceeded twice in 2007 and once in 2009; there were no violations in 2008.
- CO and NO₂ levels monitored in Mission Viejo have not exceeded any applicable standards in the last 5 years.

Based on similar data from throughout the SoCAB, the USEPA and CARB have designated portions of the SCAQMD as non-attainment for ozone, nitrogen dioxide, and particulate matter as shown in Table 2-2 of Appendix C. To bring the area into compliance with the applicable air quality standards, the SCAQMD has adopted a variety of attainment plans for ozone and particulate matter. The current plans applicable to the project area are noted in Section 2.7.2 of Appendix C.

3.3.1.5 Local Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases. Sensitive receptors can include uses such as long-term health care facilities, rehabilitation centers, and

retirement homes. Residences, schools, playgrounds, childcare centers, and athletic facilities can also be considered as sensitive receptors.

The 2011 FMPs involve continued development of two college campuses. While the primary purpose of Saddleback College and IVC is education, which is provided indoors, the campuses include features such as athletic fields and childcare facilities that are considered sensitive land uses, as they are used for outdoor physical activities. Recreational land uses (such as baseball, softball, tennis, track, and soccer facilities at the Saddleback College campus and baseball, softball, tennis, soccer, and basketball facilities at the IVC campus) 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.

Residential areas are also considered to be 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. Residences are located within a few hundred feet to the west and south of the Saddleback College campus, and to the east, west and south of the IVC campus. Mission Hospital is located approximately 0.25 mile north of Saddleback College, and is also considered a sensitive receptor.

Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time.

3.3.2 IMPACT SIGNIFICANCE CRITERIA

3.3.2.1 CEQA Evaluation Criteria

The State CEQA Guidelines suggest that a project would normally be judged to produce a significant or potentially significant effect on the environment if the project would:

- *Conflict with or obstruct implementation of the applicable air quality plan.*
- *Violate any air quality standard or contribute substantially to an existing or projected air quality violation.*
- *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 standards.*
- *Expose sensitive receptors to substantial air pollutant concentrations.*
- *Create objectionable odors affecting a substantial number of people.*

As indicated in Section 15064(i)(1) of the State CEQA Guidelines, “cumulatively considerable” is defined to mean *“that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.”*

3.3.2.2 Regional Emission Standards

Within the context of the above threshold considerations, based on the SCAQMD's CEQA Air Quality Handbook (1993), project impacts would be significant if they exceed the following California standards for localized CO concentrations:

- 1-hour CO standard of 20.0 parts per million (ppm)
- 8-hour CO standard of 9.0 ppm

The SCAQMD has also developed regional and localized significance thresholds (LSTs) for other regulated pollutants, as summarized in Table 3.3-1. The SCAQMD's CEQA Air Quality Significance Thresholds (March 2009) indicate that any projects in the SoCAB with daily emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact.

**TABLE 3.3-1
SCAQMD MAXIMUM DAILY EMISSIONS THRESHOLDS**

Pollutant	Construction	Operational
NO _x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM ₁₀	150 lbs/day	150 lbs/day
PM _{2.5}	55 lbs/day	55 lbs/day
SO _x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day

3.3.3 IMPACTS FOUND TO BE LESS THAN SIGNIFICANT

3.3.3.1 Odors

- *The Project would not create objectionable odors affecting a substantial number of people.*

The potential for the Proposed Project to generate objectionable odors has been considered. Land uses generally associated with odor complaints include:

- Agricultural uses (livestock and farming)
- Wastewater treatment plants
- Food processing plants
- Chemical plants
- Composting operations
- Refineries
- Landfills
- Dairies
- Fiberglass molding facilities

The Project does not contain land uses typically associated with emitting objectionable odors. Potential odor sources associated with the Proposed Project may result from construction equipment exhaust and the application of asphalt and architectural coatings during construction activities, and

the temporary storage of typical solid waste (refuse) associated with the Project's (long-term operational) uses. Standard construction requirements, such as restrictions on vehicle idling, would minimize odor impacts resulting from construction activity. Any construction odor emissions generated would be temporary, short-term, and intermittent in nature and would cease upon completion of the respective phase of construction activity and is thus considered less than significant. It is expected that project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with the applicable agencies solid waste regulations. The Proposed Project would also be required to comply with SCAQMD Rule 402 to prevent occurrences of public nuisances. Therefore, odors associated with the Proposed Project construction and operations would be less than significant and no mitigation is required.

3.3.3.2 Impacts to Sensitive Receptors

Carbon Monoxide "Hot Spot" Analysis

- *The Project would not expose sensitive receptors to substantial concentrations of carbon monoxide.*

It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when idling at intersections. Vehicle emissions standards have become increasingly stringent over the last twenty years. Currently, the CO standard in California is a maximum of 3.4 grams/mile for passenger cars. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the project vicinity have steadily declined, as shown based on historical data from the Saddleback Valley (SRA 19) monitoring station. Accordingly, with the steadily decreasing CO emissions from vehicles, even very busy intersections do not result in exceedances of the CO standard. The SoCAB has been designated as attainment for CO since 2007.

The analysis prepared for CO attainment in the SoCAB by the SCAQMD can be used to assist in evaluating the potential for CO exceedances in the SoCAB. CO attainment was thoroughly analyzed as part of the SCAQMD's 2003 Air Quality Management Plan (2003 AQMP) and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan). As discussed in the 1992 CO Plan, peak carbon monoxide concentrations in the SoCAB are due to unusual meteorological and topographical conditions, and not due to the impact of particular intersections. Considering the region's unique meteorological conditions and the increasingly stringent CO emissions standards, CO modeling was performed as part of 1992 CO Plan and subsequent plan updates and air quality management plans.

In the 1992 CO Plan, a CO hot spot analysis was conducted for four busy intersections in Los Angeles at the peak morning and afternoon time periods. The intersections evaluated included: Long Beach Boulevard and Imperial Highway (Lynwood); Wilshire Boulevard and Veteran Avenue (Westwood); Sunset Boulevard and Highland Avenue (Hollywood); and La Cienega Boulevard and Century Boulevard (Inglewood). These analyses did not indicate a violation of CO standards. The busiest intersection evaluated was that at Wilshire Boulevard and Veteran Avenue, which has a daily traffic volume of approximately 100,000 vehicles per day. The Los Angeles County Metropolitan Transportation Authority evaluated the LOS in the vicinity of the Wilshire Boulevard/Veteran Avenue intersection and found it to be Level E at peak morning traffic and Level F at peak afternoon traffic.

According to the Traffic Impact Analysis (Appendix C), the highest number of average daily trips at the build-out of the campuses would be 84,000 for Crown Valley Parkway between Interstate 5 and Marguerite Parkway (for Saddleback College) and 64,000 for Jeffrey Road between Interstate 5 and Roosevelt (for IVC). These projections of daily trips are lower than the values studied in the 1992 CO Plan. Since the higher traffic levels (from vehicles generally producing higher levels of CO) studied in

the 1992 CO Plan did not result in a violation of CO standards, it is concluded that none of the intersections in the vicinity of the campuses would violate CO standards at buildout of the 2011 FMPs. For these reasons, a carbon monoxide “hot spot” analysis is not needed. Further, peak hourly traffic volumes at intersections near the campuses are not projected to exceed those at the intersections modeled in the 2003 AQMP, and there is no unique project-area meteorology that could result in higher CO concentrations if modeled in detail.

For the reasons described, the Proposed Project would not result in a significant CO “hotspot” as a result of project-related traffic during ongoing operations. Thus, impacts to sensitive receptors will be less than significant during operational activity.

3.3.3.3 Project Consistency with Applicable Air Quality Plans

- *The Project would not conflict with or obstruct implementation of the applicable air quality plan.*

The college campuses are located within the SoCAB, which is characterized by relatively poor air quality. Several State and federal air quality standards are exceeded in the region. In response, the SCAQMD has adopted a series of AQMPs to meet the State and federal ambient air quality standards. AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy.

SCAQMD 2007 AQMP

The SCAQMD has published the Draft Final 2007 AQMP, which was adopted by the SCAQMD Governing Board on June 1, 2007. In September 2007, the CARB Board adopted the SCAQMD 2007 AQMP. The purpose of the 2007 AQMP for the SoCAB is to set forth a comprehensive program that will lead these areas into compliance with federal and state air quality planning requirements for ozone and PM_{2.5}. On September 27, 2007, the CARB Board adopted the State Strategy for the 2007 State Implementation Plan and the 2007 South Coast AQMP. The project's consistency with the 2007 AQMP is discussed as follows:

Criteria for determining consistency with the AQMP are defined in Chapter 12, Section 12.2 and Section 12.3 of the SCAQMD's *CEQA Air Quality Handbook* (1993). These indicators are discussed below:

- **Consistency Criterion No. 1:** *The proposed project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.*

The violations that are referenced by Consistency Criterion No. 1 are violations of the CAAQS and NAAQS. The LST analysis that is presented above analyzes the project's compliance with the applicable air quality standards. Based on this analysis, the Project will not exceed the short-term construction standards for localized emissions (after mitigation) and a less-than-significant impact is expected. Additionally, with mitigation, operational emissions will not exceed the SCAQMD's regional threshold criteria, as described in section 3.3.3.4 (*Air Quality Standards*) below. On the basis of this discussion, the Project is determined to be consistent with the first criterion.

- **Consistency Criterion No. 2:** *The proposed project will not exceed the assumptions in the AQMP in 2011 or increments based on the years of project build-out phase.*

Assumptions of the AQMP used in projecting future emissions levels are based in part on land use data provided by lead agency general plan documentation. Projects that propose General Plan amendments and changes of zone may increase the intensity of use and/or result in higher traffic volumes, thereby resulting in increased stationary area source emissions and/or vehicle source emissions when compared to the AQMP assumptions. If however, a project does not exceed the growth projections in the applicable local General Plan, then the project is considered to be consistent with the growth assumptions in the AQMP. Although the Project consists of updated FMPs, no substantial increases in land use intensities are proposed. The purpose of the Project is to accommodate future demand associated with population increases in the region. As such, the Proposed Project complies with Consistency Criterion No. 2.

Since the project satisfies both of the two aforementioned criteria for determining consistency, the Project is deemed consistent with the AQMP and a less-than-significant impact is expected.

3.3.3.4 Air Quality Standards

Operational Emissions

- *Project operations would not violate an air quality standard or contribute substantially to an existing or projected air quality violation.*

Operational activities associated with the Proposed Project will result in emissions of ROG, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}. Operational emissions would be expected from the following primary sources:

- **Vehicles:** Project operational (vehicular) impacts are dependent on both overall daily vehicle trip generation and the effect of the project on peak hour traffic volumes and traffic operations in the vicinity of the project. The Project related operational air quality impact centers primarily on the vehicle trips generated by the Proposed Project. Trip characteristics available from the Project's Traffic Study (Appendix C) were used in this analysis.
- **Combustion emissions associated with natural gas and electricity:** Electricity and natural gas are used by almost every building. Criteria pollutant emissions are emitted through the generation of electricity and consumption of natural gas. However, because electrical generating facilities for the Project area are located either outside the region (state) or offset through the use of pollution credits for generation within the SoCAB, criteria pollutant emissions from offsite generation of electricity is generally excluded from the evaluation of significance and only natural gas use is considered.
- **Fugitive dust related to vehicular travel:** Vehicles traveling on paved roads would be a source of fugitive emissions due to the generation of road dust.
- **Landscape maintenance equipment:** Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the project.
- **Architectural coatings:** Over a period of time the buildings that are part of this Project will be subject to emissions resulting from the evaporation of solvents contained in paints, varnishes, primers, and other surface coatings as part of project maintenance.

Emissions estimates from these sources are produced by the CalEEMod model. Summaries of the emissions from each of these sources is provided in Table 3.3-6 for Saddleback College and Table 3.3-7 for IVC; detailed calculations are provided in Appendix C.

Results of the analysis indicate that implementation of the FMPs will not exceed any of the allowable regional thresholds during operational activity for either the Saddleback College or IVC campuses. Therefore, operational impacts are less than significant and no mitigation is required.

**TABLE 3.3-2
SADDLEBACK COLLEGE OPERATIONAL EMISSIONS SUMMARY (WITHOUT MITIGATION)**

Activity	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
	Emissions in pounds per day (lbs/day)					
SUMMER OPERATIONAL ACTIVITIES						
Area Source Emissions ¹	4.88	0	0	0	0	0
Energy Source Emissions ²	0.16	1.43	1.20	0.01	0.11	0.11
Mobile Emissions ³	18.86	45.26	167.43	0.70	77.04	4.15
Maximum Daily Emissions	23.90	46.69	168.63	0.71	77.15	4.26
SCAQMD Regional Threshold	55	55	550	150	150	55
Significant?	NO	NO	NO	NO	NO	NO
WINTER OPERATIONAL ACTIVITIES						
Area Source Emissions ¹	4.88	0	0	0	0	0
Energy Source Emissions ²	0.16	1.43	1.20	0.01	0.11	0.11
Mobile Emissions ³	20.06	46.54	158.98	0.64	77.05	4.16
Maximum Daily Emissions	25.10	47.97	160.18	0.65	77.16	4.27
SCAQMD Regional Threshold	55	55	550	150	150	55
Significant?	NO	NO	NO	NO	NO	NO
¹ Includes emissions of landscape maintenance equipment and architectural coatings emissions.						
² Includes emissions of natural gas consumption.						
³ Includes emissions of vehicle emissions and fugitive dust related to vehicular travel.						
Source: Appendix C, Table 3-5.						

**TABLE 3.3-3
IRVINE VALLEY COLLEGE OPERATIONAL EMISSIONS SUMMARY (WITHOUT MITIGATION)**

Activity	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
	Emissions in pounds per day (lbs/day)					
SUMMER OPERATIONAL ACTIVITIES						
Area Source Emissions ¹	3.06	0	0	0	0	0
Energy Source Emissions ²	0.10	0.90	0.75	0.01	0.07	0.07
Mobile Emissions ³	11.83	28.39	105.02	0.44	48.32	2.61
Maximum Daily Emissions	14.99	29.29	105.77	0.45	48.39	2.68
SCAQMD Regional Threshold	55	55	550	150	150	55
Significant?	NO	NO	NO	NO	NO	NO
WINTER OPERATIONAL ACTIVITIES						
Area Source Emissions ¹	3.06	0	0	0	0	0
Energy Source Emissions ²	0.10	0.90	0.75	0.01	0.07	0.07

Activity	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
	Emissions in pounds per day (lbs/day)					
Mobile Emissions ³	12.58	29.19	99.72	0.40	48.33	2.61
Maximum Daily Emissions	15.74	30.09	100.47	0.41	48.40	2.68
SCAQMD Regional Threshold	55	55	550	150	150	55
Significant?	NO	NO	NO	NO	NO	NO
¹ Includes emissions of landscape maintenance equipment and architectural coatings emissions. ² Includes emissions of natural gas consumption. ³ Includes emissions of vehicle emissions and fugitive dust related to vehicular travel. Source: Appendix C, Table 3-4.						

3.3.4 POTENTIAL IMPACTS AND MITIGATION MEASURES

Emissions estimates for this project were produced using the SCAQMD's California Emissions Estimator Model (CalEEMod). The purpose of this model is to accurately calculate air quality and greenhouse gas (GHG) emissions from direct and indirect sources and quantify applicable air quality and GHG reductions achieved from mitigation measures. As such, CalEEMod was been used for this project to determine construction and operational air quality impacts. Assumptions and outputs from the model runs for both construction and operational activity are provided in Appendix C.

3.3.4.1 Impacts to Sensitive Receptors

Localized Significance – Construction Activity

- *The Project could expose sensitive receptors to substantial air pollutant concentrations.*

The analysis in Appendix C makes use of methodology included in the SCAQMD *Final Localized Significance Threshold Methodology* (June 2003). The SCAQMD has established that impacts to air quality are significant if there is a potential to contribute or cause localized exceedances of the federal and/or state ambient air quality standards (NAAQS/CAAQS). Collectively, these are referred to as Localized Significance Thresholds (LSTs).

The significance of localized emissions impacts depends on whether ambient levels in the vicinity of the project are above or below State standards. In the case of CO and NO₂, if ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a state or federal standard, then project emissions are considered significant if they increase ambient concentrations by a measurable amount. This would apply to PM₁₀ and PM_{2.5}, both of which are non-attainment pollutants.

LSTs were developed in response to environmental justice and health concerns raised by the public regarding exposure of individuals to criteria pollutants in local communities. To address the issue of localized significance, the SCAQMD adopted LSTs that show whether a project would cause or contribute to localized air quality impacts and thereby cause or contribute to potential localized adverse health effects. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest residence or sensitive receptor. The SCAQMD states that lead agencies can use the LSTs as an indicator of significance in air quality impact analyses.

For this project, the appropriate Source Receptor Area (SRA) for the LST is the Saddleback Valley area (SRA 19), which generally encompasses the cities of Irvine, Lake Forest, Mission Viejo, and Rancho Santa Margarita. LSTs apply to carbon monoxide (CO), nitrogen dioxide (NO₂), particulate matter ≤10 microns (PM₁₀), and particulate matter ≤2.5 microns (PM_{2.5}). The SCAQMD has produced look-up tables for projects less than or equal to 5 acres in size; however, they can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required.

Construction or modification of parking areas, athletic fields, and academic or administrative buildings is currently proposed immediately adjacent to sensitive receptors; as such, receptors are assumed to be located at approximately 50 meters from disturbed areas on both campuses.

For purposes of this analysis, LSTs have been evaluated only for construction of the Proposed Project. Mobile sources make up the largest source of criteria air pollutants under operational activity of the Proposed Project. LSTs would not apply to emissions during operational activity as localized concentration cannot be properly quantified during operations due to the variable locations of mobile sources and because the majority of mobile source emissions would occur off-site which is not within the purview of LSTs. Only CO concentrations at roadway intersections with an adverse level of service may be quantified (see the Carbon Monoxide “Hot Spot” Analysis in section 3.3.3).

The SCAQMD has issued guidance on applying CalEEMod to LSTs. Since CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily soil disturbance activity possible for each piece of equipment, the following table should be used to determine the maximum daily disturbed-acreage for comparison to LSTs.

Equipment Type	Acres/8-hr day
Crawler Tractors	0.5
Graders	0.5
Rubber-Tired Dozers	0.5
Scrapers	1.0

As shown in the table, CalEEMod identifies the maximum acreage disturbance per day to be 1 acre for each scraper and 0.5 acre for each crawler tractor, grader, and rubber-tired dozer. Based on this, the Proposed Project would result in a maximum of 3.0 acres disturbed during peak construction activity (grading) (2 Scrapers x 1 + 1 Rubber Tired Dozer x 0.5 + 1 Grader x 0.5 = 3.0 acres disturbed). This represents the worst-case ground disturbance for construction of any of the proposed elements of the FMPs on either the Saddleback College or IVC campuses.

In order to determine if dispersion modeling was required, the project construction emissions were compared to LSTs for a three-acre site as a conservative measure. Per LST guidance, only onsite construction activity is considered in the LST analysis.

Table 3.3-2 presents the results of comparing project construction activity to the three-acre LSTs; as shown, emissions will not exceed any of the localized thresholds for construction activity (before mitigation) with the exception of PM_{2.5} emissions. Through actions such as requiring certain construction vehicles to meet minimum CARB Tier 2 certification requirements, maintaining construction staging areas at least 300 feet from sensitive receptors, and the use of Zero-Volatile Organic Compound paints, the mitigation measures provided below reduce PM_{2.5} emissions to below a level of significance.

TABLE 3.3-4
LOCALIZED SIGNIFICANCE SUMMARY – CONSTRUCTION (WITHOUT MITIGATION)

Activity	NO _x	CO	PM ₁₀	PM _{2.5}
	Emissions in pounds per day (lbs/day)			
On-Site Demolition	79.87	45.95	4.10	4.10
On-Site Site Preparation	89.73	50.45	22.68	14.54
On-Site Grading	110.77	57.70	14.10	8.74
On-Site Building Construction	40.22	24.03	2.80	2.80
On-Site Paving	35.62	21.08	3.13	3.13
On-Site Architectural Coating	3.37	1.98	0.31	0.31
Maximum Daily Emissions	110.77	57.70	22.68	14.54
SCAQMD Localized Threshold	148	1,518.67	24.33	7.67
Significant?	NO	NO	NO	YES
Source: Appendix C, Table 3-5				

SCAQMD Rules currently applicable to new construction on the campuses include, but are not limited to: Rule 402 (Nuisance), Rule 403 (Fugitive Dust), Rule 431.2 (Low Sulfur Fuel), Rule 1113 (Architectural Coatings), and Rule 1186/1186.1 (Street Sweepers). In order to facilitate monitoring and compliance, applicable SCAQMD regulatory requirements are summarized below, and are restated as mitigation measures.

Mitigation Measure AQ-1: *The following measures shall be incorporated into project plans and specifications as implementation of Rule 403:*

- *All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 25 mph per SCAQMD guidelines in order to limit fugitive dust emissions.*
- *The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the Project are watered at least three times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the mid-morning, afternoon, and after work is done for the day.*
- *The contractor shall ensure that traffic speeds on unpaved roads and Project site areas are reduced to 15 miles per hour or less to reduce PM₁₀ and PM_{2.5} fugitive dust haul road emissions by approximately 44%.*

Mitigation Measure AQ-2: *The California Air Resources Board, in Title 13, Chapter 10, Section 2485, Division 3 of the of the California Code of Regulations, imposes a requirement that heavy duty trucks accessing the site shall not idle for greater than five minutes at any location. This measure is intended to apply to construction traffic. Prior to issuance of a grading permit, the grading plans shall reference that a sign shall be posted on-site stating that construction workers need to shut off engines after five minutes of idling.*

In addition to the above-cited SCAQMD regulatory requirements, following construction activity mitigation measures will be implemented during build-out of the FMPs.

Mitigation Measure AQ-3: Grading plans, construction specifications and bid documents shall include notation that all Rubber Tired Dozers and Scrapers shall be CARB Tier 2 Certified or better. The South Orange County Community College District shall review grading plans, construction specifications, and bid documents for conformance with this mitigation measure prior to approval of grading plans and issuance of grading permits.

Mitigation Measure AQ-4: In order to reduce localized Project impacts to sensitive receptors in the Project vicinity during construction, construction equipment staging areas shall be located at least 300 feet away from sensitive receptors.

For localized emissions after implementation of the recommended mitigation measures, Table 3.3-3 indicates that emissions resulting from short-term construction activity will not exceed the SCAQMD LST thresholds and a less-than-significant impact is expected.

**TABLE 3.3-5
LOCALIZED SIGNIFICANCE SUMMARY – CONSTRUCTION (WITH MITIGATION)**

Activity	NO _x	CO	PM ₁₀	PM _{2.5}
	Emissions in pounds per day (lbs/day)			
On-Site Demolition	79.87	45.95	4.10	4.10
On-Site Site Preparation	63.78	40.49	10.25	7.07
On-Site Grading	88.73	55.47	7.65	5.56
On-Site Building Construction	40.22	24.03	2.80	2.80
On-Site Paving	35.62	21.08	3.13	3.13
On-Site Architectural Coating	3.37	1.98	0.31	0.31
Maximum Daily Emissions	88.73	55.47	10.25	7.07
SCAQMD Localized Threshold	148	1,518.67	24.33	7.67
Significant?	NO	NO	NO	NO
Source: Appendix C, Table 4-2.				

3.3.4.2 Violation of Air Quality Standards

Construction Emissions

- Project construction could violate an air quality standard or contribute substantially to an existing or projected air quality violation.

Construction activities associated with the Proposed Project will result in emissions of CO, VOCs, NO_x, SO_x, PM₁₀, and PM_{2.5}. Construction-related emissions are expected from the following construction activities:

- Demolition
- Site Preparation
- Grading
- Paving
- Building Construction
- Architectural Coatings (Painting)
- Construction Workers Commuting

Since site-specific construction activities are not known with a great deal of certainty, and only approximate construction scheduling is known, the approximate construction scheduling for the “worst-case” phase of construction was used in the CalEEMod model and defaults for all other assumptions were utilized. This worst-case phase of construction illustrates the theoretical maximum impact at any of the construction sites at either of the campuses. Specific modeling inputs/outputs are contained in Appendix C; a detailed summary of construction equipment assumptions by phase is provided in Table 3-2 of Appendix C. Equipment estimates were derived from discussion with the project team as well as model defaults in the CalEEMod model.

Dust is typically a major concern during rough-grading activities. Because such emissions are not amenable to collection and discharge through a controlled source, they are called “fugitive emissions.” Emissions rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). The CalEEMod model was utilized to calculate fugitive dust emissions resulting from this phase of activity. Additionally, based on discussions with the project team, past project experience, and the nature of proposed projects on the campuses, it is anticipated that the sites will balance, and no import or export of soil will be required. Construction emissions for construction worker vehicles traveling to and from the project site, as well as vendor trips (construction materials delivered to the project site) were also estimated using the CalEEMod model.

The estimated maximum daily construction emissions are summarized on Table 3.3-4. Under the assumed worst-case conditions, emissions resulting from project construction will exceed criteria pollutant thresholds established by the SCAQMD for emissions of NO_x.

**TABLE 3.3-6
MAXIMUM DAILY CONSTRUCTION EMISSIONS (WITHOUT MITIGATION)**

Activity	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
	Emissions in pounds per day (lbs/day)					
Maximum Daily Emissions	33.03	110.91	59.29	0.10	22.92	14.56
SCAQMD Regional Threshold	75	100	550	150	150	55
Significant?	NO	YES	NO	NO	NO	NO
Source: Appendix C, Table 3-3.						

As shown in Table 3.3-5, with the implementation of Mitigation Measures AQ-1 through AQ-4 (described above), NO_x emissions would be reduced to below a level of significance. These measures require actions such as ensuring certain construction vehicles meet minimum CARB Tier 2 certification requirements and maintaining construction staging areas at least 300 feet from sensitive receptors.

**TABLE 3.3-7
MAXIMUM DAILY CONSTRUCTION EMISSIONS (WITH MITIGATION)**

Activity	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
	Emissions in pounds per day (lbs/day)					
Maximum Daily Emissions	33.03	88.86	57.07	0.10	10.49	7.09
SCAQMD Regional Threshold	75	100	550	150	150	55
Significant?	NO	NO	NO	NO	NO	NO
Source: Appendix C, Table 4-1.						

3.3.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Section 3.3.4.1 (*Impacts to Sensitive Receptors*) indicates that the Proposed Project will not exceed the SCAQMD localized significance thresholds during construction activity with the implementation of mitigation measures. Therefore, sensitive receptors would not be subject to a significant air quality impact during project construction. Operational emissions are less than significant without the need for mitigation.

3.3.6 CUMULATIVE IMPACTS

3.3.6.1 Criteria Pollutants

- *The Project would not result in a cumulatively considerable net increase of a criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standards.*

The Project has the potential to release gaseous emissions of criteria pollutants and dust into the ambient air; therefore, it falls under the ambient air quality standards promulgated on the local, State, and federal levels. With the prescribed mitigations, construction-period emissions would remain below the threshold values promulgated by the SCAQMD, so they would not add significantly to the cumulative impact.

The Project's operational emissions are below thresholds without the need for mitigation. The project is also consistent with the applicable AQMP serving the region. The AQMP forecasts attainment of ambient air quality standards inclusive of growth in population, employment, and vehicle miles traveled, as described in the Growth Management Chapter of the Southern California Association of Government's Regional Comprehensive Plan and Guide. Projects found to be consistent with the growth assumptions upon which the AQMP forecasts are based, are deemed by the SCAQMD to be consistent with the AQMP and would not impede attainment of the ambient air quality standards. Since the project is designed to accommodate the increased needs for higher education resulting from SCAG's projected growth in central and southern Orange County, the Proposed Project will not jeopardize attainment of State and federal ambient air quality standards or cause significant operational air quality cumulative impacts.

Therefore, cumulative impacts during both the construction and operational periods are considered less than significant.

3.4 GREENHOUSE GAS EMISSIONS

Urban Crossroads, Inc. prepared a Greenhouse Gas Analysis (GHGA) in November 2011 analyzing the general construction and operational effects of FMP implementation at both campuses. Appendix D includes the GHGA and the results of Project-related emissions modeling. Following is a summary of the major findings and recommendations. Appendix D should be consulted for technical descriptions, modeling methodologies, and detailed GHG emissions data.

3.4.1 EXISTING SETTING

3.4.1.1 Background

Global climate change refers to any significant change in climate measurements, such as temperature, precipitation, or wind, lasting for an extended period (i.e., decades or longer). Climate change may result from:

- natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun;
- natural processes within the climate system (e.g., changes in ocean circulation, reduction in sunlight from the addition of greenhouse gases to the atmosphere from volcanic eruptions); and
- human activities that change the atmosphere's composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, desertification).

State law defines GHGs to include the following compounds:

- Carbon Dioxide (CO₂)
- Methane (CH₄)
- Nitrous Oxide (N₂O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur Hexafluoride (SF₆)

Carbon dioxide equivalent (CO₂e) is a quantity that describes, for a given mixture and amount of greenhouse gases, the amount of CO₂ that would have the same Global Warming Potential, when measured over a specified timescale (generally, 100 years).

3.4.1.2 Global Climate Change Regulatory Issues

In 1988, the United Nations established the Intergovernmental Panel on Climate Change to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United Nations Framework Convention on Climate Change established an agreement with the goal of controlling GHG emissions. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the U.S. The Plan consists of more than 50 voluntary programs. The Kyoto Protocol, which set goals for the reduction of GHGs, was negotiated in 1997 and came into force in 2005; the U.S. has signed but not ratified the treaty.

In 2007, the U.S. Supreme Court found that GHGs are air pollutants covered by the Clean Air Act (CAA). The Court held that the U.S. Environmental Protection Agency (USEPA) must determine whether or not emissions of GHG from new motor vehicles cause or contribute to air pollution that

may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

In 2009, the USEPA approved two distinct findings regarding GHGs under the CAA:

- **Endangerment Finding:** The current and projected concentrations of the six key well-mixed GHGs—CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

3.4.1.3 California Greenhouse Gas Emissions Regulations

There are a variety of statewide and local (AQMD-level) rules and regulations that have been implemented or are under development in California that mandate the quantification or reduction of GHGs. Executive orders, legislation, and regulation relevant to the FMPs include:

Assembly Bill 1493

In response to the transportation sector's contribution of more than half of California's CO₂ emissions, Assembly Bill 1493 (AB 1493, Pavley) was enacted on July 22, 2002. AB 1493 requires the California Air Resources Board (CARB) to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles whose primary use is noncommercial personal transportation. CARB adopted the standards in September 2004. The new standards will be phased in during the 2009–2016 model years. When fully phased in, the near term (2009–2012) standards will result in a reduction of about 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the midterm (2013–2016) standards will result in a reduction of about 30 percent.

Before these regulations may go into effect, the USEPA must grant California a waiver under the federal CAA, which ordinarily preempts state regulation of motor vehicle emission standards. On June 30, 2009, the USEPA formally approved California's waiver request. However, in light of the September 15, 2009, announcement by the USEPA and NHTSA regarding the national program to reduce vehicle GHG emissions, California—and states adopting California emissions standards—have agreed to defer to the proposed national standard through model year 2016 if granted a waiver by the USEPA. The 2016 endpoint of the two standards is similar, although the national standard ramps up slightly more slowly than required under the California standard. The Pavley standards require additional reductions in CO₂ emissions beyond 2016 (referred to as Phase II standards). While the Phase II standards have yet to be fully developed, CARB has made it clear that the state intends to pursue additional reductions from motor vehicles in the 2017 through 2020 timeframe under the California Global Warming Solutions Act of 2006.

Executive Order S-3-05

Executive Order S-3-05, signed in 2005, set forth a series of target dates for statewide emissions of GHGs to be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The Secretary of the California Environmental Protection Agency (Cal/EPA) is required to coordinate efforts of various agencies in order to collectively and efficiently reduce GHGs. Some of the agency representatives involved in the GHG reduction plan include the Secretary of the Business, Transportation and Housing Agency, the Secretary of the Department of Food and Agriculture, the Secretary of the Resources Agency, the Chairman of CARB, the Chairman of the California Energy Commission (CEC), and the President of the Public Utilities Commission.

Representatives from each of the aforementioned agencies comprise the Climate Action Team. The Cal/EPA secretary is required to submit a biannual progress report from the Climate Action Team to the governor and state legislature disclosing the progress made toward GHG emission reduction targets. In addition, another biannual report must be submitted illustrating the impacts of global warming on California's water supply, public health, agriculture, coastline, and forests, and reporting possible mitigation and adaptation plans to combat these impacts. Some strategies currently being implemented by state agencies include CARB introducing vehicle climate change standards and diesel anti-idling measures, the Energy Commission implementing building and appliance efficiency standards, and the Cal/EPA implementing their green building initiative. The Climate Action Team also recommends future emission reduction strategies, such as using only low-GWP refrigerants in new vehicles, developing ethanol as an alternative fuel, reforestation, solar power initiatives for homes and businesses, and investor-owned utility energy efficiency programs. According to the report, implementation of current and future emission reduction strategies have the potential to achieve the goals set forth in Executive Order S-3-05.

Executive Order S-1-07 (Low Carbon Fuel Standard)

Executive Order S-1-07 (January 2007) sets a declining standard for GHG emissions measured in CO₂-equivalent gram per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020. The LCFS will apply to refiners, blenders, producers, and importers of transportation fuels and will use market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle" using the most economically feasible methods. The executive order requires the Secretary of Cal/EPA to coordinate with the CEC, CARB, the University of California, and other agencies to develop a protocol to measure the "life-cycle carbon intensity" of transportation fuels. CARB released a draft version of the LCFS in October 2008 and adopted the final regulation in April 2009.

Senate Bill 97

Senate Bill 97 (SB 97), enacted in August 2007, requires the Governor's Office of Planning and Research (OPR) to develop guidelines for the mitigation of GHG emissions, or the effects related to releases of GHG emissions. In April 2009, OPR submitted proposed amendments to the Natural Resources Agency in accordance with SB 97 including regarding analysis and mitigation of GHG emissions. Formal rulemaking was conducted in 2009 prior to adopting the amendments. The CEQA significance analysis for the Proposed Project was conducted in accordance with the proposed OPR guidance developed under this statute.

As part of the guidelines, OPR recommends that CARB set statewide thresholds of significance, and emphasized the need to have a consistent threshold available to analyze projects. The draft guidelines also noted that the analyses should be performed based on the best available information.

As directed by SB 97, the Natural Resources Agency adopted Amendments to the CEQA Guidelines for greenhouse gas emissions; these amendments became effective March 2010.

Assembly Bill 32 – California Global Warming Solutions Act

AB 32, the Global Warming Solutions Act of 2006, was enacted as legislation in 2006 and requires CARB to establish a statewide GHG emission cap for 2020 based on 1990 emission levels. AB 32 required CARB to adopt regulations by January 2008, that identified and required selected sectors or categories of emitters of GHGs to report and verify their statewide GHG emissions, and CARB is authorized to enforce compliance with the program. Under AB 32, CARB was also required to adopt, by January 2008, a statewide GHG emissions limit equivalent to the statewide GHG emissions levels in 1990, that must be achieved by 2020. In 2011, CARB adopted rules and regulations (operative in 2012) to achieve the maximum technologically feasible and cost-effective GHG emission reductions.

Climate Change Scoping Plan

In December 2008, CARB released a Scoping Plan outlining the state's strategy to achieve the 2020 GHG emissions limit. This Scoping Plan, developed by CARB in coordination with the Climate Action Team (CAT), proposes a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health. It was adopted by CARB at its meeting in December 2008. The measures in the Scoping Plan approved by CARB will be developed and be in place by 2012.

Senate Bill 375

Senate Bill 375 (SB 375) became law in September 2008. SB 375 requires CARB, working in consultation with the metropolitan planning organizations (MPOs), to set regional greenhouse gas reduction targets for the automobile and light truck sector for 2020 and 2035. CARB was required to provide each MPO with its reduction target by September 2010. The target must then be incorporated within that region's Regional Transportation Plan (RTP), which is used for long-term transportation planning, in a Sustainable Communities Strategy (SCS). Certain transportation planning and programming activities would then need to be consistent with the SCS; however, SB 375 expressly provides that the SCS does not regulate the use of land, and further provides that local land use plans and policies (e.g., general plan) are not required to be consistent with either the RTP or SCS.

In accordance with SB 375, in January 2009, CARB appointed a Regional Targets Advisory Committee (RTAC) to provide recommendations and methodologies to be used in the target setting process. The RTAC provided its recommendations in a report to CARB in September 2009. In August 2010, CARB staff issued the Proposed Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375. CARB staff proposed draft reduction targets for the four largest MPOs (Bay Area, Sacramento, Southern California, and San Diego) of 7 to 8 percent for 2020 and reduction targets between 13 to 16 percent for 2035. For the Southern California Association of Governments (SCAG), which is the MPO for the region in which the campuses are located, CARB established a draft target of 8 percent for 2020 and 13 percent for 2035, subject to SCAG Board approval.

CARB staff proposed a draft reduction target for the combined San Joaquin Valley MPOs of 5 percent for 2020 and 10 percent for 2035, acknowledging that the growth rate in the San Joaquin Valley is projected to be double that of most other areas of California. The remaining six MPOs represent about 5 percent of both the State's greenhouse gas emissions and vehicle miles traveled from passenger vehicles. For these MPOs, CARB staff is proposing to use the most current greenhouse gas per capita projections from each MPO, adjusted for the impacts of the economic recession, as the basis for individual MPO targets for this first target-setting cycle. This approach allows the focus of this first target-setting cycle to appropriately remain on the largest and fastest growing regions of

the state. Of note, the proposed reduction targets explicitly exclude emission reductions expected from the AB 1493 and low carbon fuel standard regulations. CARB adopted the final targets (the same targets as the proposed draft targets) in September 2010.

In December 2011, SCAG released its Draft 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). A Draft Program EIR for the RTP/SCS was released for a 45-day public review period, which ended on February 14, 2012. Adoption of the RTP/SCS and certification of the Final EIR for the document is anticipated to occur in April 2012.

CAPCOA CEQA and Climate Change White Paper

The California Air Pollution Control Officers Association (CAPCOA) prepared a white paper on CEQA and Climate Change in January 2008. The white paper contains a disclaimer that states the paper is intended to be used as a resource by lead agencies when considering policy options and not as a guidance document. The disclaimer also states that it “is not intended, and should not be interpreted, to dictate the manner in which an air district or lead agency chooses to address GHG emissions in the context of its review of projects under CEQA” (CAPCOA 2008). Specifically, the white paper discusses three possible approaches to evaluating the significance of GHG emissions and possible mitigation measures; however, CAPCOA does not endorse any particular approach. The three alternative significance approaches are (1) not establishing a significance threshold for GHG emissions, (2) setting the GHG emission threshold at zero, and (3) setting the GHG emission threshold at some non-zero level. The white paper evaluates potential considerations and pitfalls associated with the three approaches. At the end of the white paper, CAPCOA provides a list of potential mitigation measures and discusses each in terms of emissions reduction effectiveness, cost effectiveness, and technical and logistical feasibility.

Title 24 Building Standards Code

The California Energy Commission first adopted Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) in 1978 in response to a legislative mandate to reduce energy consumption in the state. Although not originally intended to reduce GHG emissions, increased energy efficiency, and reduced consumption of electricity, natural gas, and other fuels would result in fewer GHG emissions from residential and nonresidential buildings subject to the standard. The standards are updated periodically to allow for the consideration and inclusion of new energy efficiency technologies and methods. The latest revisions were adopted in 2008 and became effective January 2010.

Part 11 of the Title 24 Building Standards Code is referred to as the California Green Building Standards Code (CALGreen Code). The purpose of the CALGreen Code is to “improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) planning and design; (2) energy efficiency; (3) water efficiency and conservation; (4) material conservation and resource efficiency; and (5) environmental air quality. The CALGreen Code is not intended to substitute or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California Building Standards Commission (CBSC). The update to Part 11 of the Title 24 Building Standards Code became effective January 2011. Unless otherwise noted in the regulation, all newly constructed buildings in California are subject of the requirements of the CALGreen Code.

3.4.1.4 Existing Greenhouse Gas Reduction Measures

Various measures are currently in place at the Saddleback College and IVC campuses to reduce GHG emissions. Those measures, and the emissions sources that are reduced by implementing the measures, are described in Table 3.4-1. Those measures reduce GHG emissions resulting from energy consumption, motor vehicle use, solid waste production, and water use.

**TABLE 3.4-1
EXISTING GREENHOUSE GAS EMISSIONS REDUCTION STRATEGIES**

Reduction Strategy	Targeted Emissions Source
Use of local vendors	Motor Vehicles
Renewable paper products	Solid Waste
LEED-friendly furniture acquisitions	Solid Waste/Energy Consumption
Reduced truck deliveries	Motor Vehicles
Electronics recycling	Solid Waste
Cogeneration facilities	Energy Consumption
Water reclamation	Water Use
Waste recycling	Solid Waste
Composting	Solid Waste
Replacement of styrofoam in food vending	Solid Waste
Paperless operations	Solid Waste
Online student education	Motor Vehicles
Energy efficient lighting	Energy Consumption
Upgraded energy management systems	Energy Consumption
Irrigation system controls/efficiency	Water Use
Parking lot photovoltaic lighting	Energy Consumption
Energy-saving plumbing	Energy Consumption
Enhanced HVAC system efficiency	Energy Consumption
Alternative fuel vehicles	Motor Vehicles
Native trees and plants	Water Use

3.4.2 IMPACT SIGNIFICANCE CRITERIA

The State CEQA Guidelines suggest greenhouse gas emissions resulting from the implementation of a project would normally be judged to produce a significant or potentially significant effect on the environment if the project were to:

- *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.*
- *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.*

In order to assess the emissions generation criterion, the SCAQMD has only adopted quantitative GHG emission significance thresholds to assess direct impacts from industrial projects for which the SCAQMD is the lead agency; no threshold has been established for institutional projects as those proposed in the FMPs. The SCAQMD and other air quality agencies concur that GHG and climate change should be evaluated as a potentially significant cumulative, rather than project-specific,

impact. The SCAQMD's CEQA Significance Threshold Working Group is considering a recommendation for the adoption of a numeric plan-level efficiency target of 6.6 metric tons of carbon dioxide equivalent per service population per year (MT CO₂e/SP/Yr) for the year 2020 and 4.1 MT CO₂e/SP/Yr for the year 2035.

Based on the above, implementation of the Project may have a significant adverse impact on GHG emissions under the following circumstances:

- A potentially significant impact would occur if the Project exceeds the SCAQMD's proposed threshold of 6.6 MT CO₂e/SP/Yr in the year 2020 and 4.1 MT CO₂e/SP/Yr in the year 2035.
- A potentially significant impact would occur if the Project fails to show consistency with the AB 32 Scoping Plan Measures, which constitute the State's plan for GHG reductions.

3.4.3 IMPACTS FOUND TO BE LESS THAN SIGNIFICANT

3.4.3.1 Direct and Indirect GHG Emissions

- *The Project would not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.*

Emissions estimates for this Project were produced using SCAQMD's CalEEMod. The purpose of this model is to accurately calculate air quality and GHG emissions from direct and indirect sources and quantify applicable emissions achieved from mitigation measures. Standard assumptions (as established by SCAQMD) for the "Junior College" and "Parking Structure" land uses were used for the calculations. Emissions resulting from demolition, site preparation, grading, construction, architectural coatings, paving, vehicle trips, energy use (electricity and natural gas), water use, and waste production were included. Details of the assumptions and outputs from the model runs for both construction and operational activity are provided in Appendix D. Tables 3.4-2 and 3.4-3 summarize the total GHG emissions for the two campuses.

**TABLE 3.4-2
SADDLEBACK COLLEGE TOTAL GREENHOUSE GAS EMISSIONS**

Emissions Source	Emissions (Metric Tons Per Year)			
	CO ₂	CH ₄	N ₂ O	Total CO ₂ E
Annual construction-related emissions	1,422.72	0.14	--	1,425.68
Energy	890.12	0.03	0.02	2,386.07
Mobile Sources	6,741.42	0.18	--	6,745.25
Waste	158.52	9.37	--	355.25
Water Usage	81.11	0.28	0.01	89.64
Total CO ₂ E (All Sources)	9,511.46			
Service Population	4,279			
MTCO ₂ E/SP/Yr	2.22			
2020 Threshold MTCO ₂ E/SP/Yr	6.6			
2035 Threshold MTCO ₂ E/SP/Yr	4.1			
Significant?	NO			
Note: MT CO ₂ E/SP/Yr = metric tons of carbon dioxide equivalent per service population per year Source: Appendix D, Table 2-5.				

**TABLE 3.4-3
IRVINE VALLEY COLLEGE TOTAL GREENHOUSE GAS EMISSIONS**

Emissions Source	Emissions (Metric Tons Per Year)			
	CO ₂	CH ₄	N ₂ O	Total CO ₂ E
Annual construction-related emissions	1,422.72	0.14	--	1,425.68
Energy	558.32	0.02	0.01	561.79
Mobile Sources	4,228.55	0.11	--	4,230.96
Waste	99.43	5.88	--	222.83
Water Usage	50.88	0.18	0.01	56.23
Total CO ₂ E (All Sources)	6,497.49			
Service Population	2,684			
MTCO ₂ E/SP/Yr	2.42			
2020 Threshold MTCO ₂ E/SP/Yr	6.6			
2035 Threshold MTCO ₂ E/SP/Yr	4.1			
Significant?	NO			
Note: MT CO ₂ E/SP/Yr = metric tons of carbon dioxide equivalent per service population per year Source: Appendix D, Table 2-4.				

As shown in Table 3.4-2, the Saddleback College campus will produce GHG emissions of approximately 9,511.46 MT CO₂e/Yr and 2.22 MT CO₂e/SP/Yr. Table 3.4-3 shows that the IVC campus will produce GHG emissions of approximately 6,497.49 MT CO₂e/Yr and 2.42 MT CO₂e/SP/Yr. The combined total emissions from both campuses are 16,008.95 MT CO₂e/Yr and 2.30 MT CO₂e/SP/Yr. Therefore, implementation of the FMPs would not individually exceed the GHG emissions threshold of 6.6 MT CO₂e/SP/Yr in the year 2020 or 4.1 MT CO₂e/SP/Yr in the year 2035 at either the Saddleback College or IVC campuses, nor would the combined total emissions exceed the threshold. As such, the GHG emissions resulting from implementation of the FMPs are not cumulatively considerable.

3.4.3.2 Consistency with GHG Plans and Policies

- *The Project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.*

CARB identified reduction measures to achieve GHG emissions goals in its Scoping Plan. Projects that are consistent with the CARB Scoping Plan are also consistent with the 29 percent reduction below business-as-usual required by AB 32.

Table 3.4-4 presents the 39 Recommended Actions (qualitative measures) identified to date by CARB in its Climate Change Proposed Scoping Plan. Of the 39 measures identified, those that would be considered to be applicable to the FMPs are primarily those actions related to transportation, electricity and natural gas use, green building design, and industrial uses. Consistency of the FMPs with these measures is evaluated by each source-type measure in Table 3.4-4. A discussion of how the FMPs are consistent with each applicable CARB Recommended Action follows the table.

TABLE 3.4-4
RECOMMENDED ACTIONS FOR CLIMATE CHANGE PROPOSED SCOPING PLAN

ID #	Sector	Strategy Name	Applicable to Project?	Will Project Conflict With Implementation?
T-1	Transportation	Pavley I and II – Light-Duty Vehicle GHG Standards	YES	NO
T-2	Transportation	Low Carbon Fuel Standard (Discrete Early Action)	YES	NO
T-3	Transportation	Regional Transportation-Related GHG Targets	YES	NO
T-4	Transportation	Vehicle Efficiency Measures	YES	NO
T-5	Transportation	Ship Electrification at Ports (Discrete Early Action)	NO	NO
T-6	Transportation	Goods-movement Efficiency Measures	NO	NO
T-7	Transportation	Heavy Duty Vehicle Greenhouse Gas Emission Reduction Measure – Aerodynamic Efficiency (Discrete Early Action)	NO	NO
T-8	Transportation	Medium and Heavy-Duty Vehicle Hybridization	NO	NO
T-9	Transportation	High Speed Rail	NO	NO
E-1	Electricity & Natural Gas	Increased Utility Energy efficiency Programs More stringent Building and Appliance Standards	YES	NO
E-2	Electricity & Natural Gas	Increase Combined Heat and Power Use by 30,000 GWh	NO	NO
E-3	Electricity & Natural Gas	Renewable Portfolio Standard	NO	NO
E-4	Electricity & Natural Gas	Million Solar Roofs	NO	NO
CR-1	Electricity & Natural Gas	Energy Efficiency	YES	NO
CR-2	Electricity & Natural Gas	Solar Water Heating	NO	NO
GB-1	Green Buildings	Green Buildings	YES	NO
W-1	Water	Water Use Efficiency	YES	NO
W-2	Water	Water Recycling	NO	NO
W-3	Water	Water System Energy Efficiency	NO	NO
W-4	Water	Reuse Urban Runoff	YES	NO
W-5	Water	Increase Renewable Energy Production	NO	NO
W-6	Water	Public Goods Charge (Water)	NO	NO
I-1	Industry	Energy Efficiency and Co-benefits Audits for Large Industrial Sources	NO	NO
I-2	Industry	Oil and Gas Extraction GHG Emission Reduction	NO	NO
I-3	Industry	GHG Leak Reduction from Oil and Gas Transmission	NO	NO
I-4	Industry	Refinery Flare Recovery Process Improvements	NO	NO
I-5	Industry	Removal of Methane Exemption from Existing Refinery Regulations	NO	NO
RW-1	Recycling & Waste Management	Landfill Methane Control (Discrete Early Action)	NO	NO

ID #	Sector	Strategy Name	Applicable to Project?	Will Project Conflict With Implementation?
RW-2	Recycling & Waste Management	Additional Reductions in Landfill Methane – Capture Improvements	NO	NO
RW-3	Recycling & Waste Management	High Recycling/Zero Waste	YES	NO
F-1	Forestry	Sustainable Forest Target	NO	NO
H-1	High Global Warming Potential Gases	Motor Vehicle Air Conditioning Systems (Discrete Early Action)	NO	NO
H-2	High Global Warming Potential Gases	SF ₆ Limits in Non-Utility and Non-Semiconductor Applications (Discrete Early Action)	NO	NO
H-3	High Global Warming Potential Gases	Reduction in Perfluorocarbons in Semiconductor Manufacturing (Discrete Early Action)	NO	NO
H-4	High Global Warming Potential Gases	Limit High GWP Use in Consumer Products (Discrete Early Action, Adopted June 2008)	NO	NO
H-5	High Global Warming Potential Gases	High GWP Reductions from Mobile Sources	NO	NO
H-6	High Global Warming Potential Gases	High GWP Reductions from Stationary Sources	NO	NO
H-7	High Global Warming Potential Gases	Mitigation Fee on High GWP Gases	NO	NO
A-1	Agriculture	Methane Capture at Large Dairies	NO	NO

A detailed discussion of the applicability of each measure and if the Project conflicts with its implementation is as follows:

Transportation

CARB's Scoping Plan identifies nine transportation-related recommended actions. Action T-1 concerns improvements to light-duty vehicle technology for the purposes of reducing GHG emissions. This action focuses on legislating improved controls for vehicle manufacturers and would not generally be considered applicable to the Proposed Project. Vehicles utilized by the Proposed Project would be subject to the standards of AB 1493, as applicable, and would be consistent with and not conflict with this recommended action.

Action T-2 concerns implementation of a low carbon fuel standard. To reduce the carbon intensity of transportation fuels, CARB is developing a Low Carbon Fuel Standard (LCFS), which would reduce the carbon intensity of California's transportation fuels by at least ten percent by 2020 as called for by California Executive Order S-01-07. The LCFS will incorporate compliance mechanisms that provide flexibility to fuel providers in how they meet the requirements to reduce greenhouse gas emissions.

While implementation of such a standard is not within the purview of a development project, the campuses are and will continue to be substantial consumers of fuels for transportation purposes. Projects such as the implementation of the FMPs would be required to participate with the use of low carbon fuels as they are made available through purchase of fuels for its vehicle fleet. Therefore, the Proposed Project would not conflict with measures concerning the use of low carbon fuels.

Action T-3 addresses regional transportation targets for reducing GHG emissions. SB 375 requires CARB to develop, in consultation with metropolitan planning organizations (MPOs), passenger vehicle greenhouse gas emissions reduction targets for 2020 and 2035 by September 30, 2010. It sets forth a collaborative process to establish these targets, including the appointment by CARB of a Regional Targets Advisory Committee to recommend factors to be considered and methodologies for setting greenhouse gas emissions reduction targets. SB 375 also provides incentives – relief from certain CEQA requirements for development projects that are consistent with regional plans that achieve the targets. The Proposed Project is not expected to conflict with the SB 375 targets. The campuses incorporate features that will reduce demand for auto use and encourage alternative modes of transportation. For example, by maintaining centralized facilities, campus users will be able to park upon arriving and then walk or bike between academic buildings, offices, recreational facilities, dining areas, etc. In addition, public transportation services regularly serve the campuses and provide reasonably convenient access to nearby residential and commercial areas.

Action T-4 is concerned with vehicle efficiency measures. CARB is pursuing a regulation to ensure that tires are properly inflated when vehicles are serviced. In addition, CEC in consultation with CIWMB is developing an efficient tire program focusing first on data gathering and outreach, then on potential adoption of minimum fuel-efficient tire standards, and lastly on the development of consumer information requirements for replacing tires. CARB is also pursuing ways to reduce engine load via lower friction oil and reducing the need for air conditioner use. ARB is actively engaged in the regulatory development process for the tire inflation component of this measure. While implementation of such a standard is not within the purview of a development project, a land use such as that proposed would generate VMT and be subject to any applicable adopted standards and would therefore not conflict with the recommended measure.

Action T-5 addresses electrification of ships at ports and is not applicable to the Proposed Project. Therefore, the Proposed Project would not conflict with this measure.

Action T-6 also primarily addresses port operations and is not applicable to the Proposed Project. Therefore, the Proposed Project would not conflict with this measure.

Action T-7 requires existing trucks/trailers to be retrofitted with the best available technology and/or CARB-approved technology. Implementation of such a standard is not within the purview of the Proposed Project since various trucks may access the site. Therefore, the Proposed Project would not conflict with this measure.

Action T-8 focuses on hybridization of medium- and heavy-duty vehicles. The implementation approach to Action T-8 is to adopt a regulation and/or incentive program that reduces GHG emissions by encouraging hybrid technology as applied to vocational applications that have significant urban, stop-and-go driving, idling, and power take-off operations in their duty cycle. Such applications include parcel delivery trucks and vans. Implementation of such a standard is not within the purview of the Proposed Project since various trucks may access the site. Therefore, the implementation of the FMPs would not conflict with this measure.

Action T-9 concerns implementation of a high speed rail system. A high-speed rail system is part of the statewide strategy to provide more mobility choice and reduce greenhouse gas emissions. This measure supports implementation of plans to construct and operate a high-speed rail system between northern and southern California. Implementation of the FMPs would not conflict with implementation of a high-speed rail system.

Electricity and Natural Gas

Action E-1, together with Action GB-1 (Green Building), aims to reduce electricity demand by increased efficiency of Utility Energy Programs and adoption of more stringent building and appliance standards. Elements of this action include encouraging construction of zero net energy (ZNE) buildings and implementation of passive solar design. In addition to employing on-site electricity generation, a ZNE building must either replace natural gas with renewable energy for space and water heating, or compensate for natural gas use by generating surplus electricity for sale on the state's electricity grid. Projects implementing the FMPs would be required to comply with the latest Title 24 Energy Efficiency Standards and applicable Green Building Standards; the FMPs call for new development to exceed Title 24 energy requirements by a minimum of 15 percent. In addition, the FMPs encourage new development to achieve a minimum LEED Silver certification. Passive solar design has been and will continue to be used to achieve greater energy efficiency. For example, the BSTIC facility at IVC was oriented to minimize energy use and incorporated overhangs for shading and a free-standing wall adjacent to the building which reduces heat gain caused by the hot afternoon sun. Cogeneration facilities at the campuses have allowed for increased efficiency by simultaneously providing heat and hot water. In addition, onsite electricity generation occurs at a solar power generation system at Hart Gymnasium at IVC. Therefore, the Proposed Project would not conflict with this measure.

Action E-2 encourages an increase in the use of co-generation facilities, which simultaneously produce heat and electricity. A significant portion of the energy needs of both campuses are currently provided by onsite cogeneration facilities. Implementation of the FMPs would not conflict with State goals related to broader use of cogeneration.

Action E-3 concerns Renewable Portfolio Standards for utilities and does not apply directly to development projects, therefore, the implementation of the FMPs would not conflict with the recommended measure.

Action E-4 promotes solar generated electricity. The Million Solar Roofs initiative is not within the purview of any one individual project. A solar photovoltaic installation is in place at the Hart Gymnasium at IVC; additional installations will be considered on a case-by-case basis for future buildings on the campuses. Therefore, the implementation of the FMPs would not conflict with this measure.

Water Use

Implementation of all but two of the Recommended Actions related to water use are not within the purview of the Proposed Project. The two that apply W-1 (Water Use Efficiency) and W-3 (Water System Energy Efficiency). Because the Proposed Project would not exceed the audit threshold, as set forth in the preceding impact analysis, the Proposed Project is consistent with and would not obstruct the recommended actions.

Industrial Use

The FMPs do not include industrial uses and therefore these measures do not apply to the Proposed Project.

Conclusion

The implementation of the FMPs would be consistent with the CARB Scoping Plan's recommended measures and actions. As such, a qualitative assessment of the FMPs' impacts based on

consistency with the CARB Scoping Plan supports the conclusion that GHG emissions produced as a result of FMP implementation would not be cumulatively considerable.

3.4.4 POTENTIAL IMPACTS AND MITIGATION MEASURES

No impacts have been identified and no mitigation measures are required.

3.4.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Project impacts have been determined to be less-than-significant without the need for mitigation measures.

3.4.6 CUMULATIVE IMPACTS

Results of the analysis indicate that the Proposed Project will not exceed the proposed SCAQMD quantitative thresholds in either of the target years of 2020 or 2035, and would be consistent with the CARB Scoping Plan recommended measures and actions. As such, implementation of the FMPs would not result in significant increases in GHG emissions which could, when combined with projects in the cumulative impacts scenario, result in cumulatively considerable impacts.

3.5 NOISE

Giroux & Associates prepared a Noise Impact Analysis (NIA) in January 2012 analyzing the general construction and operational noise impacts of FMP implementation at both campuses. Appendix E includes the NIA and the results of project-related noise modeling. Following is a summary of the major findings and recommendations. Appendix E should be consulted for technical descriptions, modeling methodologies, and detailed noise data.

3.5.1 EXISTING SETTING

3.5.1.1 Noise Terminology

Decibels

Noise can be defined as unwanted sound. Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Sound pressure levels are described in logarithmic units of ratios of actual sound pressures to a reference pressure squared. These logarithmic units are referred to as “decibels” and are commonly abbreviated as dB. Since decibels are logarithmic units, sound pressure levels cannot be added or subtracted by ordinary arithmetic means. For example, if one automobile produces a sound pressure level of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB. In fact, they would combine to produce 73 dB. This same principle can be applied to other traffic quantities as well. For example, doubling the traffic volume on a street or the speed of the traffic will increase the traffic noise level by 3 dB. Conversely, reducing the traffic volume by one-half or reducing speed by one-half will reduce the traffic noise level by 3 dB.

A-Weighting

The frequency or pitch of a sound also has a substantial effect on how humans respond to noise. While the intensity of a sound is a purely physical quantity, the loudness or human response depends on the characteristics of the human ear. In general, the healthy human ear is most sensitive to sounds between 1,000 hertz (Hz) and 5,000 Hz and perceives both high and low frequency sounds of the same magnitude with less intensity. The A-scale approximates the frequency response of the average young ear when listening to most ordinary everyday sounds. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. The A-weighted sound level of traffic and other long-term noise-producing activities within and around a community varies considerably with time. Measurements of this varying noise level are accomplished by recording values of the A-weighted level during representative periods with a specified portion of the day. Figure 3.5-1 displays the range of noise levels associated with common in- and outdoor activities.

When evaluating changes in 24-hour community noise levels, a difference of 3 dBA is the minimum increase that is perceptible to most people. A 5 dBA increase is readily noticeable, while a difference of 10 dBA would be perceived as a doubling of loudness.

Noise Exposure Measurements

A given level of noise may be more or less tolerable depending on the duration of exposure experienced by an individual. There are two measures of noise exposure used in California that consider not only the A-level variation of noise but also the duration of the disturbance: the community noise equivalent level (CNEL) and the Day-Night Sound Level (L_{dn}). Figure 3.5-2 shows the

outdoor CNEL and L_{dn} at typical locations. CNEL weights the average noise levels by increasing them 5 dB for evening hours (7:00 PM to 10:00 PM) and 10 dB for late evening and morning hours (10:00 PM to 7:00 AM). The daytime noise levels (7:00 AM to 7:00 PM) are combined with these weighted levels and are averaged to obtain a CNEL value.

The L_{dn} measure, adopted by the U.S. Environmental Protection Agency (USEPA), is similar to CNEL but only weights the late evening and morning hours (10:00 PM to 7:00 AM) by 10 dB. The L_{dn} does not weight the evening hours (7:00 PM to 10:00 PM). As with the CNEL measure, the daytime noise levels (7:00 AM to 10:00 PM) are combined with the weighted late evening and morning noise levels (10:00 PM to 7:00 AM) and averages to obtain an L_{dn} value.

The CNEL measure is more restrictive by giving added weight to the evening hours, and is used by both the Cities of Irvine and Mission Viejo in noise modeling.

Equivalent Energy Noise Level (L_{eq})

L_{eq} , the equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.

3.5.1.2 State and Local Regulations

State of California Office of Planning and Research

The State Office of Planning and Research (OPR) Noise Element Guidelines include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The OPR Guidelines contain a land use compatibility table that describes the compatibility of different land uses with a range of environmental noise levels in terms of CNEL. A noise environment of up to 70 dB CNEL is considered to be conditionally acceptable¹ for residential, school, and park uses, according to those Guidelines. At office buildings, business, commercial and professional land uses, a CNEL of up to 77.5 dB is considered to be conditionally acceptable. For industrial land uses, a CNEL of up to 80 dB is considered conditionally acceptable.

City of Mission Viejo

SOCCCD-owned facilities are exempt from local noise ordinance standards. However, the district's standard practice is to limit construction to the permissible hours set forth in local noise ordinances. For the purposes of environmental analysis, projected noise levels resulting from development on the Saddleback College campus are compared to noise standards of the City of Mission Viejo.

The Mission Viejo General Plan Noise Element comparability guidelines are based on those established by the office California. Table N-3 in the Mission Viejo General Plan Noise Element provides land use compatibility guidelines based on the state of California Guidelines. For school classroom use, exterior noise levels of up to 60 dB are considered "normally acceptable" and levels up to 70 dB are considered "conditionally acceptable." Conditionally acceptable requires that a detailed analysis of noise reduction be undertaken.

¹ Conditionally Acceptable (as defined by the State of California Office of Planning and Research): New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

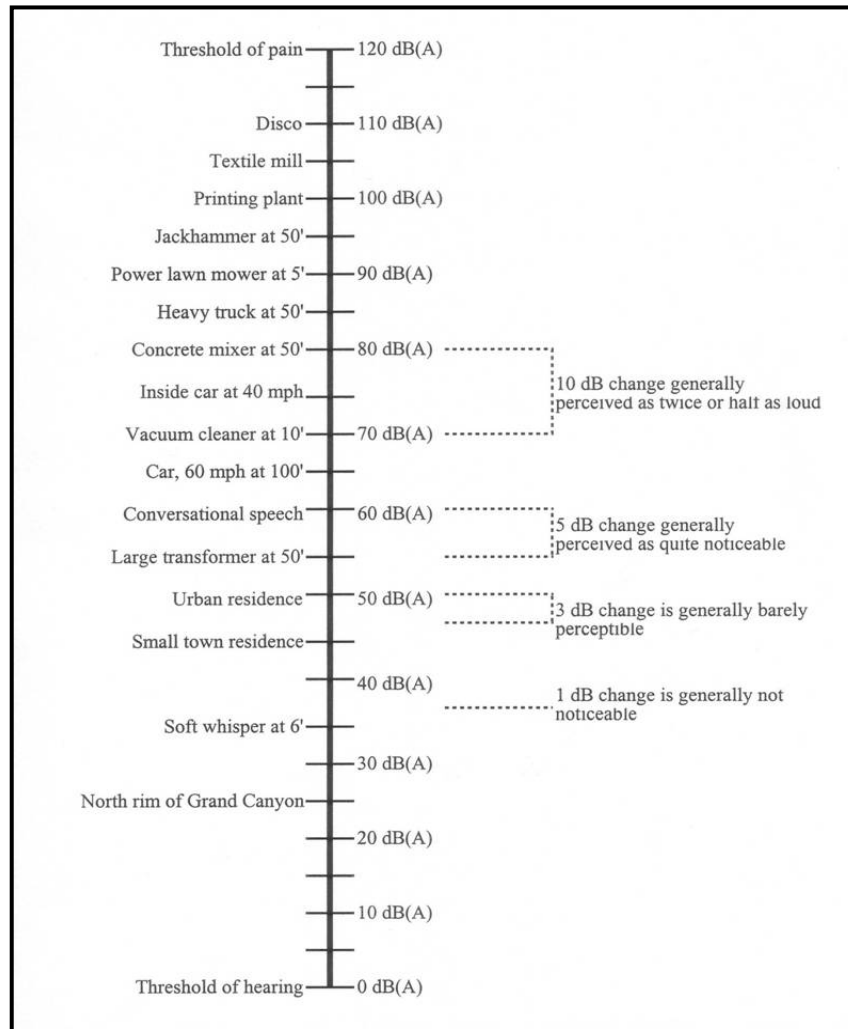


FIGURE 3.5-1
COMMON NOISE SOURCES AND A-WEIGHTED NOISE LEVELS

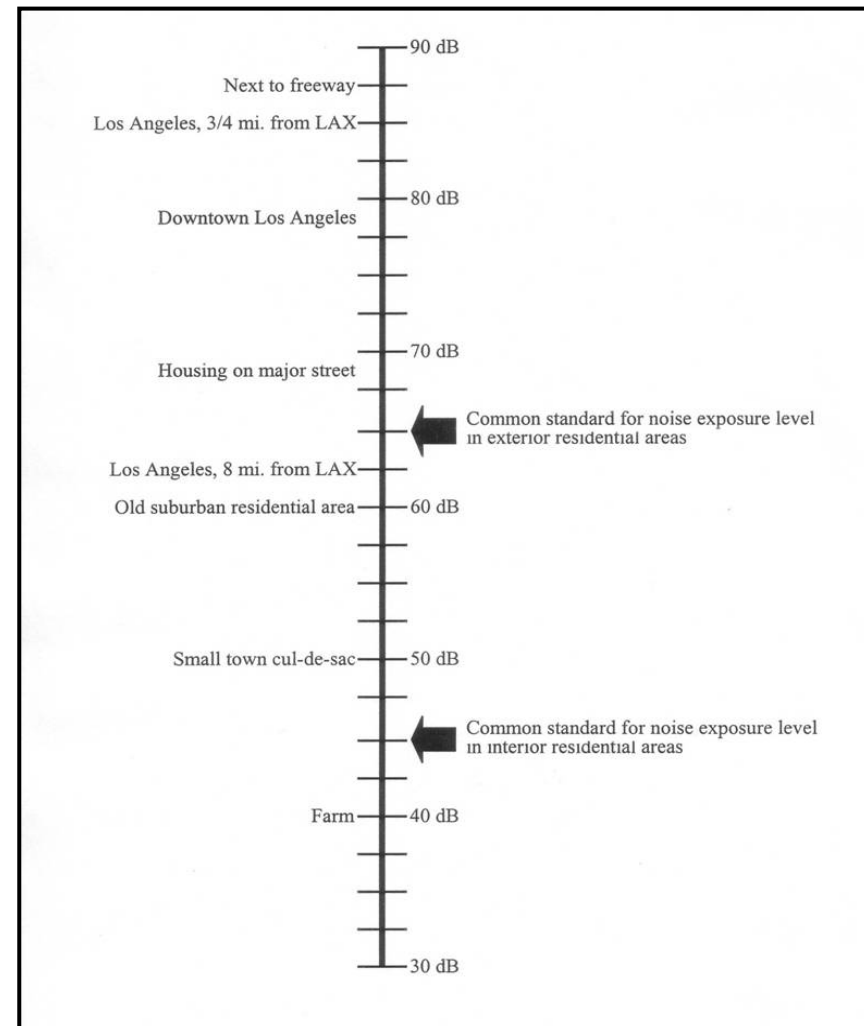


FIGURE 3.5-2
COMMON CNEL AND LDN EXPOSURE LEVELS

The Mission Viejo Municipal Code, sections 6.35.040 and 9.22.025 describe the allowable noise standards and are presented in Table 3.5-2. These standards apply to all residential areas adjacent to the Proposed Project. These noise standards are expressed in terms of a mean (50th percentile or L₅₀) noise level, which is the noise level allowed for up to 30 minutes. Some short-term noise levels may exceed the 50th percentile standard, up to a maximum of 20 dB above the allowable mean. For this project, an L₅₀ daytime standard of 55 dB and L₅₀ nighttime of 50 dB is required.

**TABLE 3.5-1
CITY OF MISSION VIEJO STATIONARY NOISE STANDARDS**

Noise Zone	Time Interval	Noise Levels (dB) for a Period Not Exceeding (Minutes Per Hour)				
		30 min. (L ₅₀)	15 min. (L ₂₅)	5 min. (L ₈)	1 min. (L ₂)	L _{max}
Residential property	7:00 AM - 10:00 PM	55	60	65	70	75
	10:00 PM - 7:00 AM	50	55	60	65	70
Note: L _{max} indicates a noise level may not be exceeded for any period of time. Source: City of Mission Viejo Municipal Code, Section 6.35.040						

If ambient baseline noise conditions already exceed any of these thresholds, the standard is adjusted upward to equal the ambient level. No project is thus held to a standard that is more stringent than the ambient level.

City of Mission Viejo Construction Noise Standards

Since construction noise is of a temporary nature, the City of Mission Viejo does not require compliance with any numerical standards as stated in Section 9.22.035(d) of the City's Development Code. However, this noise code and standard conditions on grading permits do require operational considerations (i.e., hours of construction, mufflers on construction equipment, etc.) to minimize noise impacts during the construction process as follows:

Permissible Hours of Equipment or Material Delivery

Sec. 6.35.070 of the Municipal Code addresses delivery of equipment and material at a construction site and states "Onsite building operations and the delivery of any materials, supplies, or construction equipment located within one-half mile of a structure for human occupancy shall be prohibited between the hours of 8:00 PM to 7:00 AM on weekdays and Saturdays, or at any time on Sunday or a city holiday."

Permissible Hours of Grading or Construction

Sec. 8.10.540 of the Municipal Code addresses the permissible hours of grading operations and states that "grading and equipment operations within one-half mile of a structure for human occupancy shall not be conducted between the hours of 8:00 PM and 7:00 AM nor on Sundays and federal holidays."

City of Mission Viejo Noise Standard Exemptions

Sec. 9.22.035 of the Mission Viejo Municipal Code, (Special Provisions) exempts activities conducted on the grounds of any public college from any numerical noise standards. However, the noise ordinance standards were used as a guideline of possible noise impact significance even if they do not legally apply to the Proposed Project.

City of Irvine

SOC CCD-owned facilities are exempt from local noise ordinance standards. However, the district's standard practice is to limit construction to the permissible hours set forth in local noise ordinances. For the purposes of environmental analysis, projected noise levels resulting from development on the IVC campus are compared to noise standards of the City of Irvine. Table F-1 of the Irvine General Plan Noise Element contains numerical noise compatibility guidelines for various land uses. For school classroom use, an exterior noise level 65 dB CNEL is stated to be considered "clearly compatible" for classroom use. Noise levels of up to 70 dB are considered "normally compatible" but should be undertaken only after a detailed noise analysis of reduction measures are required. Table F-1 of the General Plan also states that interior classroom noise levels should not exceed 45 dBA CNEL.

The City's Noise Ordinance (Irvine Municipal Code, Title 6 [Public Works], Division 8 [Pollution], Chapter 2 [Noise]) (adopted in 1975 and revised in February 2005) establishes the maximum permissible noise level that can intrude into adjoining property from a stationary source. These standards cannot be exceeded for more than 30 minutes in any hour. For events with shorter duration, these levels are adjusted upwards as seen in Table 3.5-1. For residential properties adjacent to this project, the noise level may not exceed 55 dB L_{50} during daytime hours and 50 dB L_{50} during the nighttime hours.

TABLE 3.5-2
CITY OF IRVINE STATIONARY NOISE STANDARDS

Noise Zone	Time Interval	Noise Levels (dB) for a Period Not Exceeding (Minutes Per Hour)				
		30 min. (L_{50})	15 min. (L_{25})	5 min. (L_8)	1 min. (L_2)	L_{max}
Zone 1: Hospitals, churches, schools, and residential properties	7:00 AM - 10:00 PM	55	60	65	70	75
	10:00 PM - 7:00 AM	50	55	60	65	70
Zone 2: Professional office and public institutional	Anytime	55	60	65	70	75
Zone 3: Commercial, excluding professional office	Anytime	60	65	70	75	80
Zone 4: Industrial	Anytime	70	75	80	85	90
Note: L_{max} indicates a noise level may not be exceeded for any period of time. Source: City of Irvine Municipal Code, Title 6, Division 8. Chapter 2, Noise						

City of Irvine Construction Noise Standards

According to the Irvine Municipal Code, Section 6-8-205A, construction activities may occur between the hours of 7:00 AM – 7:00 PM Monday through Friday and 9:00 AM – 6:00 PM on Saturdays. No construction is permitted outside of these hours or on Sundays and federal holidays without a temporary waiver. Trucks, vehicles, and equipment that are making or involved with deliveries, loading, or transfer of materials for any construction project are also subject to these provisions.

City of Irvine Noise Standard Exemptions

The City's Noise Ordinance also determines what specific activities are exempt from the noise provisions. Section 6-8-205D of the Municipal Code states that activities lawfully conducted on public parks, public playgrounds, and public or private school grounds are exempt from the Noise

Ordinance provisions. In addition, school athletic and entertainment events that are conducted on school property are also exempt. However, the noise ordinance standards were used as a guideline of possible noise impact significance even if they do not legally apply to the Proposed Project.

3.5.1.3 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 such as railroads or vibration-intensive stationary sources, but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers. 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 described as the velocity and the rate of change of the speed is described as the acceleration. Each of these descriptors can be used to correlate vibration to 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 experience annoyance due to noise generated from vibration of a structure or items within a structure. This type of vibration is best measured in velocity and acceleration. The three main wave types of concern in the propagation of groundborne vibrations are surface or Rayleigh waves, compression or P-waves, and shear or S-waves.

- Surface or Rayleigh waves travel along the ground surface. They carry most of their energy along an expanding cylindrical wave front, similar to the ripples produced by throwing a rock into a lake. The particle motion is more or less perpendicular to the direction of propagation (known as retrograde elliptical).
- Compression or P-waves are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal, in a push-pull motion. P-waves are analogous to airborne sound waves.
- Shear or S-waves are also body waves, carrying their energy along an expanding spherical wave front. Unlike P-waves, however, the particle motion is transverse, or perpendicular to the direction of propagation.

The peak particle velocity (PPV) or the root mean square (RMS) velocity is usually used to describe vibration amplitudes. PPV is defined as the maximum instantaneous peak of the vibration signal and RMS is defined as the square root of the average of the squared amplitude of the signal. PPV is more appropriate for evaluating potential building damage. The units for PPV velocity is normally inches per second (in/sec). Often, vibration is presented and discussed in dB units in order to compress the range of numbers required to describe the vibration. In this study, all PPV and RMS velocity levels are in in/sec and all vibration levels are in dB relative to one microinch per second (abbreviated as VdB). Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Even the more persistent Rayleigh waves decrease relatively quickly as they move away from the source of the vibration. Manmade vibration problems are, therefore, usually confined to short distances (500 feet or less) from the source. Construction operations generally include a wide range of activities that can generate groundborne vibration.

The level at which groundborne vibration is strong enough to cause structural damage has not been determined conclusively. The most conservative estimates are reflected in the Federal Transit Administration (FTA) standards shown in Table 4. Vibration related problems generally occur due to resonances in the structural components of a building because structures amplify groundborne vibration. Wood-framed buildings, such as typical residential structures, are more easily excited by ground vibration than heavier buildings. According to a Caltrans Technical Advisory (Transportation

Related Earthborne Vibration, 2006), extreme care must be taken when sustained pile driving occurs within 25 feet of any building; the threshold at which there is a risk of architectural damage to normal houses with plastered walls and ceilings is 0.2 inches per second.

TABLE 3.5-3
GROUNDBORNE VIBRATION AND NOISE IMPACT CRITERIA, STRUCTURAL DAMAGE

Building Category	PPV (in/sec)	VdB
Reinforced concrete, steel or timber	0.5	102
Engineered concrete and masonry (no plaster)	0.3	98
Non-engineered timber and masonry buildings	0.2	94
Buildings extremely susceptible to vibration damage	0.12	90
Source: FTA 2006.		

3.5.1.4 Existing Noise Environment

Ambient Noise Levels

Noise readings at the Saddleback Campus were obtained on Wednesday, January 11, 2012. Measurement results are shown in Table 3.5-4 and monitor locations are shown in Figure 3.5-3. Noise meters 1 and 2 are in the southeastern portion of the campus and represent noise levels currently experienced by homes along Las Tunas Drive. These homes are in the vicinity of the proposed renovated Athletic Stadium. Existing noise levels are between 59-65 dB L_{eq} .

Meters 3 and 4 are in the western side of campus. These multi-family residences will be impacted by the construction of the parking structure at Parking Lot 10. Existing noise levels at these units ranges from 57 dB L_{eq} with a direct view of the campus and 47 dB, toward the interior of the complex where the berm and height variance provide a some noise attenuation.

TABLE 3.5-4
SADDLEBACK COLLEGE SHORT-TERM MEASURED NOISE LEVELS

Site No.	L_{eq}	L_{max}	L_{min}	L_{10}	L_{33}	L_{50}	L_{90}
	(Noise Level Measurements in dBA)						
1	59.2	84.5	39.0	58.0	49.0	45.0	40.0
2	64.6	73.0	54.5	67.0	64.5	63.0	59.5
3	57.0	73.5	43.5	58.5	52.0	49.5	45.5
4	47.9	54.0	42.0	50.0	48.0	46.5	44.0

- Meter 1: South edge of campus along security road next to parking lot.
- Meter 2: South edge of campus, south side of College Drive East. Meter placed directly across from southern edge of parking lot 1A and driving range.
- Meter 3: West site perimeter. Meter placed on top of berm next to closest residence across from parking lot 10 residences ("The Promenade") apartments.
- Meter 4: Within The Promenade apartment complex, next to building 28008. Parking lot 9 is closest part of site. No line-of-sight to campus due to berm.



FIGURE 3.5-3
SADDLEBACK COLLEGE NOISE METER LOCATIONS

Irvine Valley College

Short-term onsite noise measurements were made in order to document existing baseline levels in the project area. These help to serve as a basis for projecting future noise exposure from the project upon the surrounding community. Noise monitoring at IVC was conducted on Monday, January 5, 2012, from 1:00 PM to 2:30 PM at 7 locations and on Tuesday, January 10 at 9 locations. Measurement locations are shown in Figure 3.5-4 and summarized in Table 3.5-5.

Monitoring experience shows that 24-hour weighted CNELs can be reasonably well estimated from mid-afternoon noise readings. CNELs are approximately equal to mid-afternoon L_{eq} plus 3 dB (Caltrans Technical Noise Supplement, 2009). Homes along Jeffrey Road currently experience L_{eq} s in the mid-50s which would equate to CNELs of 55-59 dB CNEL. These residences are substantially shielded by noise walls/berms with only a minor opening onto Jeffrey Road. Noise levels are slightly higher on campus, across from Jeffrey, in the location of the proposed parking structure. Measured L_{eq} of 62 dB would equate to a CNEL of 65 dB. Residential areas along the eastern project perimeter currently experience low ambient noise levels with an L_{eq} of 50 dB or less. Homes along the eastern boundary would expect to experience some short term construction noise associated with the proposed Life Sciences Building.

TABLE 3.5-5
IVC SHORT-TERM MEASURED NOISE LEVELS

Site No.	L_{eq}	L_{max}	L_{min}	L_{10}	L_{33}	L_{50}	L_{90}
	(Noise Level Measurements in dBA)						
1	61.5	73.0	46.5	65.5	61.5	58.5	51.5
2	49.9	59.5	45.5	52.0	50.0	49.0	47.0
3	50.3	57.5	45.0	52.5	50.5	49.5	46.5
4	51.9	64.5	46.0	53.5	51.0	50.0	48.0
5	52.5	67.5	42.5	55.5	51.5	49.5	44.5
6	56.4	74.0	42.0	55.0	52.5	51.0	46.0
7	52.0	65.5	39.5	55.5	52.0	49.5	43.5
8	48.4	63.0	41.5	51.0	48.5	46.5	43.5
9	46.1	61.5	40.0	49.5	43.5	42.5	41.0

- Meter 1: Opposite of Woodbridge Meadows Apartments, southwest of the proposed parking structure, approximately 100 feet to Jeffrey Road centerline.
- Meter 2: Southeast corner of campus behind baseball diamond centerfield wall.
- Meter 3: South of the campus property line overlooking wildlife area, near entrance to extra parking lot on south near softball fields.
- Meter 4: Onsite, visitor parking area – in front of entrance to Child Care building.
- Meter 5: Offsite, Woodbridge Meadows Apartments. In-line with walkway to Jeffrey Road. Meter placed at front door setback of units 57 and 59 (closest units to walkway).
- Meter 6: Offsite, eastern terminus of Briarwood Street. Meter placed between townhome and apartments. No visual of Jeffrey Road due to sound wall.
- Meter 7: Offsite/eastern Terminus of Fallbrook/meter placed in walkway between homes that connects Fallbrook and Jeffrey Road.
- Meter 8: Offsite/condo complex on eastern perimeter of IVC/across from Chem Lab annex. Building under construction. Western terminus of south parking lot below 233 Tarocco
- Meter 9: Condo complex on eastern perimeter of IVC/across from Chem Lab annex/building under construction. Complex located immediately south of Pacific Church of Irvine. Western terminus of north parking lot below 65 Tarocco.

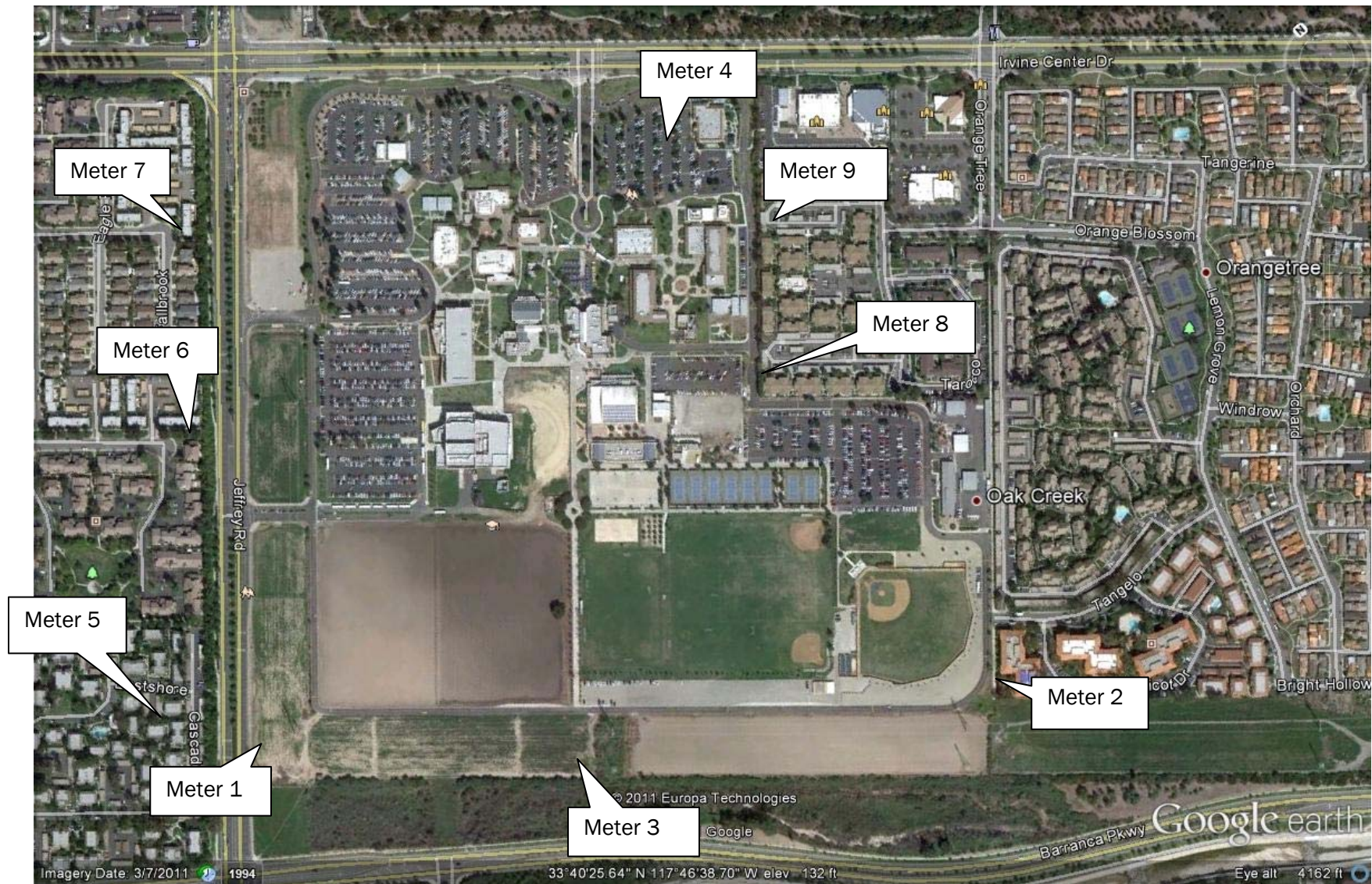


FIGURE 3.5-4
IRVINE VALLEY COLLEGE NOISE METER LOCATIONS

Noise-Sensitive Receptors

The distances below represent the shortest possible distance between new construction or major renovations included in the FMPs and the off-site residences closest to the Proposed Project site during a heavy construction period (closest façade or point of construction to the nearest residence). The nearest offsite residential uses (sensitive receptors) to any project component are located approximately 80 feet from any project boundary, as shown in Table 3.5-6.

TABLE 3.5-6
DISTANCE FROM PROJECT ELEMENTS TO NEAREST SENSITIVE USE

Project Component	Component Location	Closest Residential Use
Saddleback College		
New Parking Structure	W of College Drive, E of Marguerite Parkway	<100 feet to the west
Renovated Central Plant Facility	N of College Drive	>800 feet to the west
New Fine Arts Bldg.	E of College Drive West	>600 feet to the west
New Softball Fields	E of College Drive West	>1,000 feet to the north or >1,000 feet to the south
Renovated Athletic Stadium	Southern Campus Perimeter along College Drive East	>450 feet to the south
Irvine Valley College		
New Surface Parking Lot	Corner of Jeffrey and Barranca	>400 feet to the west across Jeffrey
New Parking Structure	Corner of Jeffrey and Barranca	>600 feet to the south across Barranca
New Athletic Stadium	Corner of Jeffrey and Barranca	>800 feet to the south across Barranca
New Life Science Bldg. (under construction)	S of Irvine Center Drive, W of Orange Tree	80 feet to the east
Swimming Pool Complex	S of Irvine Center Drive, W of Orange Blossom	>230 feet to the east

The closest wall of the Life Sciences Building currently under construction at IVC is approximately 80 feet from the residences southeast of the college. These residences are two-story multi-family use and are located north of Orange Tree Drive.

3.5.2 IMPACT SIGNIFICANCE CRITERIA

Based on the noise criteria presented above and CEQA Appendix G (Environmental Checklist), significant noise impacts would result if the project would result in:

- *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.*
- *Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.*
- *A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.*

- *A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.*
- *Exposure of persons residing or working in the project area to excessive noise levels as a result of activities at a public or public-use airport.*
- *Exposure of persons residing or working in the project area to excessive noise levels as a result of activities at a private airstrip.*

As noted previously in Section 3.5.1.1, a 3 dBA change in noise level is the minimum amount that is perceptible to most people. A 3 dBA increase, which results in noise levels above the community noise standards discussed in Section 3.5.1.2 is, therefore, established as the significance threshold for evaluating increases in ambient noise levels.

3.5.3 IMPACTS FOUND TO BE LESS THAN SIGNIFICANT

- *The Project would not result in 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.*
- *The Project would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.*

Permanent increases in ambient noise levels due to the implementation of the FMPs could result from the following noise sources:

- Increased vehicular traffic on local roadways
- Parking activities at multi-story parking structures
- Athletic activities
- Heating, ventilation, and air conditioning (HVAC) systems

Noise impacts resulting from these sources are evaluated below. The potential for these noise sources to exceed the standards of local agencies is assessed.

3.5.3.1 Off-Site Vehicular Noise Impacts

Implementation of the proposed FMPs would result in an increase in traffic on the roadways surrounding the campuses, which would result in an increase in noise emanating from these roadways. Noise concerns from mobile sources were addressed using the California-specific vehicle noise curves (CALVENO) in the federal highway noise prediction model (FHWA-RD-77-108) model developed by Caltrans, as further described in the NIA.

Saddleback College

As seen in Table 9 of the NIA, project implementation does little to change the ambient traffic noise environment. The largest project related noise increase is +0.4 dB CNEL at 50 feet from the roadway centerline. Of the 45 roadway segments analyzed in this study, 35 had no change in noise and 5 have a 0.1 dB CNEL increase in noise attributed to project traffic. Because of elevated non-project traffic volumes in the project area, any project related noise contribution is diluted and is less-than-significant.

Irvine Valley College

Table 8 in the NIA summarizes the 24-hour CNEL level at 50 feet from the roadway centerline along area roadway segments. Traffic attributed to the Proposed Project will only slightly increase the total traffic along the major thoroughfares within the project vicinity and only very close to the project site. As project-related traffic becomes progressively diluted on any particular roadway, the incremental contribution to the noise environment becomes continually smaller.

As shown in the table, Project implementation does little to change the traffic noise environment. Elevated non-project traffic levels on area roadways will substantially mask most project noise contributions. The maximum project noise contribution is +0.2 dB CNEL. Of the 56 roadway segments analyzed in the IVC environs, all but 4 had no impact (+0.0 dB change). Of the 4 segments with a measurable impact, three had a +0.1 impact. Traffic noise impacts in the IVC project area are much less than the +3 dB significance threshold, and therefore constitute a less-than-significant impact.

3.5.3.2 Operational Noise Impact: Parking Activities

Saddleback College

The Saddleback College campus is planned to have a new parking structure located approximately 100 feet from the nearest multi-family sensitive use to the northwest. The parking structure replaces onsite surface parking although the garage would accommodate more cars than the existing surface parking lot. The parking area elevation is significantly below that of the nearest sensitive use. The 35- to 55-foot change in topography assists with noise mitigation as the top of the parking garage would likely be below the roadway grade level of the nearest multi-family uses.

In some cases the noise emanating from individual cars and trucks can be loud and disturbing. Typical parking lot noise includes doors shutting, engines starting, and acceleration. Other noises can include tire squeal noise, loud stereos and car alarms. These noises would occur intermittently and are not long in duration. The frequency of these on-site noise events would increase as a result of the Project because an increased number of cars would park on the site and be concentrated in each location. However, the exact number of parking spaces planned for the new lots and parking structures is not yet known.

Single event noise from parking measurements show a wide diversity in noise levels. They occur infrequently and in short bursts. If one assumes a 100 foot source to receiver separation, the following noise levels would be experienced at the closest homes to the proposed structure without consideration of the masking effects of grade separation:

Car alarm/horn	74 dB
People shouting	59 dB
Car door slamming	57 dB
Car starting	54 dB
Car driving	49 dB

The Mission Viejo noise standard limits single event daytime maxima to 75 dB and allows 70 dB for up to 1 minute, 65 dB for 5 minutes per hour and 60 dB for 15 minutes per hour. It is unlikely that any of the above levels last long enough or are loud enough to exceed the ordinance limits.

For the following reasons, impacts from the parking activities will not significantly impact nearby noise-sensitive receptors:

- The majority of the parking structure is below the grade of off-site homes.

- Uppermost parking levels will be undesirable relative to parking spaces on lower levels nearer ground floor. Bottom levels will be noise shielded by overhead ceilings and roofs.
- Each of these individual noise sources lasts for short duration and their occurrences would be infrequent.
- Parking lot activities are primarily limited to daytime hours of lesser noise sensitivity
- Possible noise levels from parking lot travel would be similar to the existing noise baseline such that people should not be aware that cars are entering or leaving the parking areas.

Irvine Valley College

At IVC, new parking lots and/or parking structures are proposed at the corner of Jeffrey Road and Barranca Parkway. The new parking lot could be as close as 400 feet to the nearest sensitive use and the parking structure could be as close as 600 feet. In both cases, the sensitive uses are across either Jeffrey Road or Barranca Parkway, and noise from these roadways as well as distance separation would assist in masking or reducing any project generated noise. The distance separation would reduce parking activity noise to comparable ambient levels.

3.5.3.3 Operational Noise Impact: Athletic Activities

Saddleback College

Improvements relevant to athletic activities on the Saddleback College campus include:

- Construction of a new wellness center
- Construction of a new practice field for baseball
- Renovation of existing stadium
- Construction of new baseball and softball bleachers, restrooms, and concessions

The Saddleback Wellness Center will be indoors and contain passive activities. The softball fields are more than 1,000 feet from any sensitive use. The baseball fields are interior to the campus and are more than 1,500 feet from any sensitive use with many intervening buildings. The renovated stadium is 450 feet to the nearest off-site sensitive use at the nearest point, but 750 feet from the center of the field to the nearest receptor and is a continuation of an existing use.

Sec. 9.22.035 of the Mission Viejo Municipal Code, (Special Provisions) exempts activities conducted on the grounds of any public college from compliance with any numerical noise standards. However, the noise ordinance standards were used as a guideline of possible noise impact significance even if they do not legally apply to the Proposed Project.

Athletic event activity noise depends upon the intensity of the action and the number of spectators. There is no unique noise signature that can characterize every game. A variety of measurements of athletic events, however, produces a reasonably consistent pattern of noise observations. Typical reported noise levels at 500 feet from the middle of a soccer field (or from the middle of a complex of several fields) are as follows (dB L_{eq}):

Marymount College Soccer	38 dB
Chico City Park (3 fields)	43 dB
Citrus Heights Soccer Complex	46 dB
San Rafael Recreation Center	47 dB
Gavilan College (football game)	53 dB
Lake Oswego, OR (football playoff)	55 dB

As noted above, every measured event has different levels of activity, spectators, enthusiasm, etc. The above data are presented to suggest a typical range of athletic event noise. They cannot be used to represent an exact analogue of noise generation to be expected from the upgraded stadium because the parameters for an exact comparison were not recorded or reported. These data suggest that game noise is primarily in the low-to-mid 40 dB L_{eq} range at a distance equal to that of the closest offsite use. The corresponding L_{50} level is approximately 40 dB (slightly less than L_{eq}). Athletic event noise is not considered a significant impact for multiple reasons as follows:

- Such noise levels already occur from athletic events and games at the same location.
- Even though such noise is exempt from compliance with the numerical limits of the Mission Viejo Code, it will be less than the most stringent residential standard (daytime level of 50 dB L_{50}).
- Activity noise of 45 dB L_{eq} will be much less than existing noise levels of 60 to 65 dB L_{eq} found near the Las Tunas Drive homes between 7 AM to 10 PM that are located closest to campus.

The SOCCCD may choose to turn off lights on this field at 10 PM to minimize potential nuisance noise such as shouting, whistles, portable sound systems, etc.; however, such a measure would be optional and is not required to reduce noise levels to an acceptable level.

Irvine Valley College

Improvements relevant to athletic activities on the IVC campus include:

- New baseball bleachers, restrooms, and concessions
- Renovation of existing soccer fields
- Construction of new athletics stadium
- Construction of new gymnasium
- New volleyball courts and swimming pool

At the IVC campus, the stadium is more than 800 feet from the closest sensitive use across Barranca Parkway at the closest point and more than 1,000 feet from the center of the stadium. Distance and masking effects of traffic along Barranca would mask any noise emanating from the stadium. No lighting is planned such that activities would end at sundown. The baseball improvements and stadium are a continued use. The volleyball courts and swimming pool are interior to the campus and are more than 230 feet to any sensitive use.

Section 6-8-205D of the Irvine Municipal Code states that activities lawfully conducted on public parks, public playgrounds, and public or private school grounds are exempt from the Noise Ordinance provisions. In addition, school athletic and entertainment events that are conducted on school property are also exempt. Nevertheless, because of distance, the nature of activities, and lack of lighting (no nocturnal activities) ordinance standards are unlikely to be exceeded.

3.5.3.4 Operational Noise: HVAC

Stationary noise sources which may have an impact on the nearest residential activities are mechanical equipment source noise including electrical and mechanical air conditioning, which is typically located on rooftops, and will be screened from possible on-site sensitive use areas to reduce audibility. Noise standards for “stationary” sources allow for no more than an L_{50} of 55 dB daytime at the residential boundary or 50 dB L_{50} nocturnal.

Potential noise generated by HVAC equipment was evaluated using typical maximum HVAC equipment noise levels. The exact type and quantity of HVAC equipment is not yet known. The hourly average reference noise level at a 50-foot analysis distance for typical rooftop mounted equipment is 54 dB at 50 feet. Standard design features used by the district, such as shielding and parapets would reduce noise emissions below this level.

The closest project element building to any off-site sensitive use at either campus is the proposed Life Sciences building at IVC. The nearest façade of this building is approximately 80 feet to the nearest residence and the HVAC equipment is estimated to be located at approximately 120 feet. At this distance, HVAC equipment would be approximately 46 dB without shielding and shielding would reduce noise levels to less than 40 dB. This is less than the 55 dB L₅₀ daytime or 50 dB L₅₀ nighttime standard. The closest proposed building to any off-site receptor at Saddleback College is the Fine Arts Building with approximately 450 feet distance separation. At this distance noise from HVAC equipment would decay to less than 29 dB. Noise from HVAC equipment is not considered significant.

Conclusion

Based on the analysis provided above, the implementation of the FMPs would not be expected to result in the violation of any applicable noise standards or result in substantial, permanent increases in ambient noise levels. Impacts are less-than-significant.

3.5.3.5 Groundborne Vibration

- *The Project would not result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.*

Typical background vibration levels in residential areas are usually 50 VdB or lower, below the threshold of human perception. Perceptible vibration levels inside residences are typically attributed to the operation of heating and air conditioning systems, door slams, or street traffic. Construction activities and street traffic are some of the most common external sources of vibration that can be perceptible inside residences.

Construction activities generate ground-borne vibration when heavy equipment travels over unpaved surfaces or when it is engaged in soil movement. The effects of groundborne vibration include discernible movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. Vibration related problems generally occur due to resonances in the structural components of a building because structures amplify groundborne vibration. Within the “soft” sedimentary surfaces of much of Southern California, ground vibration is quickly damped out. Groundborne vibration is almost never annoying to people who are outdoors.

Groundborne vibrations from construction activities rarely reach levels that can damage structures. Because vibration is typically not an issue, very few jurisdictions have adopted vibration significance thresholds. Vibration thresholds have been adopted for major public works construction projects, but these relate mostly to structural protection (cracking foundations or stucco) rather than to human annoyance. The range of vibration decibels (VdB) is as follows:

65 VdB	threshold of human perception
72 VdB	annoyance due to frequent events
80 VdB	annoyance due to infrequent events
94-98 VdB	minor cosmetic damage

To determine potential impacts of the project’s construction activities, estimates of vibration levels induced by the construction equipment at various distances are presented in Table 3.5-7, below.

**TABLE 3.5-7
TYPICAL VIBRATION LEVELS FROM CONSTRUCTION EQUIPMENT**

Equipment	Approximate Vibration Levels (VdB) by Distance from Source			
	25 feet	50 feet	100 feet	200 feet
Pile Driver	93	87	81	75
Large Bulldozer	87	81	75	69
Loaded Truck	86	80	74	68
Jackhammer	79	73	67	61
Small Bulldozer	58	52	46	40
Source: FTA Transit Noise & Vibration Assessment, Chapter 12, Construction, 2006				

With the exception of pile driving which is not anticipated for use on the campuses, the onsite construction equipment that will create the maximum potential vibration is a large bulldozer. The stated vibration source level in the FTA Handbook for such equipment is 81 VdB at 50 feet from the source. By 200 feet the vibration level dissipates to 69 VdB.

The closest offsite residential use (sensitive receptor) is located approximately 80 feet to the east of the Life Sciences Building at IVC, which is now under construction. All other project components are at least 100 feet from any project activity. Adjacent to the Life Sciences building, vibration levels from heavy equipment would thus be around 77 VdB which is below the 80 VdB annoyance threshold for infrequent/temporary events at the nearest off-site homes. Most importantly, vibration levels will not exceed the building damage threshold. Because vibration levels from construction activities would not be substantial enough to cause architectural damage, construction activity vibration impacts are judged as less-than-significant.

3.5.3.6 Aircraft Noise

- *The Project would not result in exposure of persons residing or working in the project area to excessive noise levels as a result of activities at a public or public-use airport, or at a private airstrip.*

John Wayne Airport, located 14 miles northwest of Saddleback College and 4.5 miles west of IVC, serves commercial, general aviation, commuter, and military aircraft. It is the largest airport in Orange County, serving approximately 9 million passengers annually. The "Airport Environs Land Use Plan for John Wayne Airport" (amended April 2008) maps noise contours resulting from airport operations. Neither Saddleback College nor IVC is within any of the mapped noise contours for the airport. There are no private airstrips in the vicinity of either of the campuses. Therefore, there is no impact related to the exposure of people residing or working on the campuses to excessive noise levels as a result of activities at a public or public use airport, or a private airstrip.

3.5.4 POTENTIAL IMPACTS AND MITIGATION MEASURES

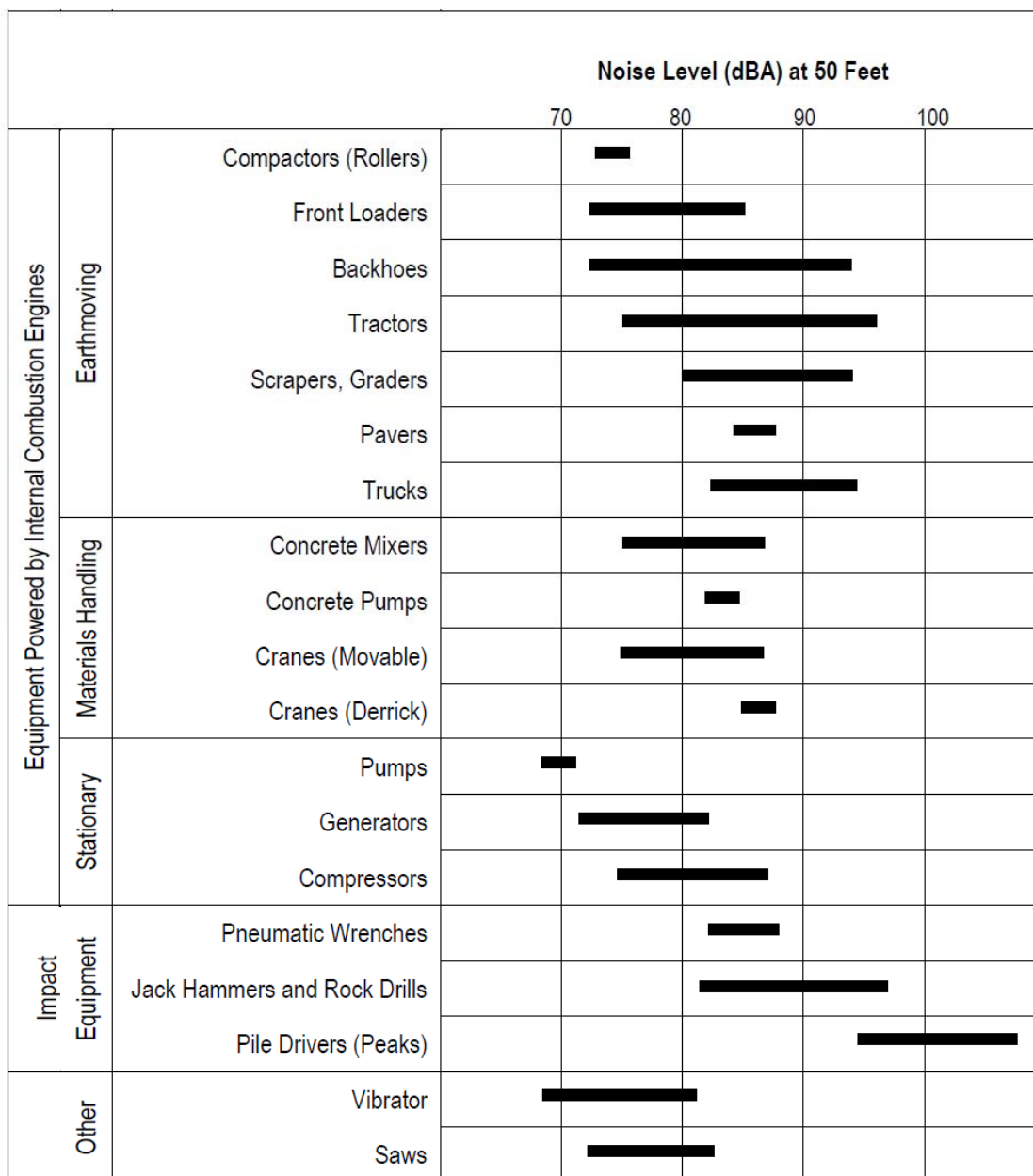
3.5.4.1 Construction Noise

- *A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.*

Construction noise creates a temporary intermittent impact on ambient noise levels in the vicinity of the construction. Noise generated by construction equipment, including trucks, graders, bulldozers, concrete mixers and portable generators, can reach high levels. Grading activities typically represent one of the highest potential sources for noise impacts. The most effective method of controlling construction noise is through local control of construction hours and by limiting the hours of

construction to normal weekday working hours. As indicated previously, the district's standard practice is to limit construction to the permissible hours set forth in local noise ordinances.

Demolition and clearing activities will be followed by excavation and grading. Construction and finishing will then occur. During these phases of building assembly and finish construction, equipment is generally less noisy. Figure 3.5-5 shows the typical range of construction activity noise generation as a function of equipment used in various building phases.



Source: EPA PB 206717, Environmental Protection Agency, December 31, 1971, "Noise from Construction Equipment and Operations."

FIGURE 3.5-5
TYPICAL CONSTRUCTION EQUIPMENT NOISE GENERATION LEVELS

The earth-moving sources are seen to be the noisiest with equipment noise ranging up to about 90 dBA at 50 feet from the source. Spherically radiating point sources of noise emissions are atmospherically attenuated by a factor of 6 dB per doubling of distance, or about 20 dB in 500 feet of propagation. The loudest earth-moving noise sources may therefore sometimes be detectable above the local background beyond 1,000 feet from the construction area. An impact radius of 1,000 feet or more pre-supposes a clear line-of-sight and no other machinery or equipment noise that would mask project construction noise. With buildings and other barriers to interrupt line-of-sight conditions, the potential “noise envelope” around individual construction sites is reduced. Construction noise impacts are, therefore, somewhat less than that predicted under idealized input conditions. In general, construction noise is of limited duration and restricted to daytime hours. For this reason, impacts to most nearby residences would be adverse but not significant as most individuals would not be expected to be at home.

The presence of suburban uses around the sites will result in reduction of noise levels behind the first row of development around the site by 10 to 20 decibels compared to the levels at an unprotected site with a line-of-sight noise exposure to construction activity. Thus at distances of more than one block from the site, construction noise may nearly fade into the background of traffic and other community noise. However, those homes immediately adjacent to the project site will be exposed to short term noise that may be intrusive into normal quiet activities. The distances below represent the shortest possible distance between the construction equipment and the off-site residences closest to the Proposed Project site during a heavy construction period (closest façade or point of construction to the nearest residence). The nearest off-site residential uses (sensitive receptor) to any project component is located approximately 80 feet from any project boundary. The nearest project component, the Life Sciences Building at IVC, is now under construction. The nearest component that has not yet begun construction is a parking structure at Saddleback College, which lies approximately 100 feet from the nearest receptors. A list of nearby sensitive receptors is provided in Table 3.5-6, above. The principal feasible means to minimize construction noise impacts is to limit high-level noise construction activity to daytime hours. Since the district’s standard practice is to limit construction to the permissible hours set forth in local noise ordinances, no additional time restrictions as mitigation will be necessary.

Among the projects proposed at both the IVC and Saddleback campuses is the construction of new parking structures. At IVC, the structure would be more than 600 feet from the nearest sensitive use across Barranca Parkway. At Saddleback College the proposed structure would be only 100 feet from the nearest multi-family use. However, because of variations in topography, the ground level of the structure will be between 35 feet and 55 feet lower than the ground level of the nearest sensitive use. This difference in height will assist in masking any project construction noise impacts.

Construction activities may occur near noise-sensitive receptors and noise disturbances may occur over prolonged periods of time. However, construction activities that result in high noise levels would be temporary, occur sporadically, and would be primarily controlled by the district’s standard practice of limiting construction to the permissible hours set forth in local noise ordinances. With implementation of the following additional measures, construction-related noise impacts would be less than significant:

Mitigation Measure NOI-1: *All equipment shall be equipped with properly operating and maintained mufflers.*

Mitigation Measure NOI-2: *Equipment and materials shall be staged in areas that will create the greatest distance between construction-related noise sources and the noise-sensitive receptors nearest the constructions sites.*

Mitigation Measure NOI-3: *Haul trucks and other construction-related trucks traveling to and from any individual project site shall be restricted to the same hours specified for the operation of construction equipment. To the extent feasible, haul routes shall not pass directly by sensitive land uses.*

3.5.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The implementation of the mitigation measures listed above will reduce noise impacts associated with implementation of the FMPs to a less-than-significant level.

3.5.6 CUMULATIVE IMPACTS

Off-Site Vehicular Noise Impacts

Cumulative impacts are defined as the difference between the “future with project” scenario and “existing” noise levels. For the Saddleback College campus, the analysis of cumulative impacts shows that only one segment will exceed the +3.0 dB significance threshold. This roadway segment, Crown Valley Parkway west of Antonio is anticipated to experience a +3.9 dB CNEL increase in traffic noise in 2030 as compared to existing noise levels. However, only +0.1 dB CNEL is attributed to project development. The increase would be cumulatively significant regardless of project implementation. Offsite vehicular noise impacts are therefore not considered to be cumulatively significant in the Saddleback College environs.

For the IVC campus, although several roadway segments along Laguna Canyon Road will experience significant traffic noise impacts in the future, these impacts are not attributed to the SOCCCD project. One roadway segment along Sand Canyon Road north of the I-5 is similarly expected to experience a cumulatively significant traffic noise impact in 2030. However, for all the potentially cumulative segments, the maximum project impact is less than 0.1 dB. The impacts would occur with or without project implementation and are due to area development. Offsite vehicular noise impacts are therefore not considered to be cumulatively significant in the IVC environs.

3.6 HYDROLOGY AND WATER QUALITY

3.6.1 EXISTING SETTING

3.6.3.1 Regulatory Background

National Pollutant Discharge Elimination System

The federal Clean Water Act (the “CWA”) established a national policy to help maintain and restore the physical, chemical and biological integrity of the nation’s waters. In 1972, the CWA established the National Pollutant Discharge Elimination System (NPDES) permit program to regulate the discharge of pollutants from “point sources” to waters of the nation (“Waters of the U.S.”). From 1972 to 1987, the main focus of the NPDES program was to regulate conventional pollutant sources such as sewage treatment plants and industrial facilities. At the same time, the U.S. Environmental Protection Agency (USEPA) conducted studies along with public agencies and other entities dealing with urban stormwater and found that runoff from urbanized areas, along with erosion and siltation from construction sites, were major sources of urban runoff pollution. Consequently, the 1987 amendments to the CWA added Section 402(p) requiring the EPA to develop permitting regulations for stormwater discharges from municipal separate storm sewers (MS4s) and industrial facilities, including construction sites.

State and Regional Regulations

The State Water Resources Control Board (SWRCB) is directed by the CWA to regulate storm water discharges under the NPDES permit program. Some of the storm water programs are addressed on a statewide basis and some on a regional basis. The SWRCB issued two General Permits (General Industrial Activities Storm Water Permit and the General Construction Activity Storm Water Permit) to address most of the industrial facilities and the construction sites within California.

A number of regional boards adopted individual storm water permits for some of the facilities within their region. The regional boards administer the State's General Permits and the regional board's individual permits. Orange County is split into two Regional Water Quality Control Board (RWQCB) jurisdictional areas. North and central Orange County, including Irvine Valley College, are part of the Santa Ana Regional Water Quality Control Board (SARWQCB). South Orange County, including Saddleback College, is part of the San Diego Regional Water Quality Control Board (SDRWQCB).

The construction and municipal stormwater regulatory program areas are applicable to the SOCCCD, as described below.

Construction Permit Program

Projects that disturb one or more acres of soil, or that disturb less than one acre but are part of a larger common plan of development, are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (SWRCB Order No. 2009-0009-DWQ was adopted in 2009 and became effective July 1, 2010). Coverage under the General Construction Permit is based on a project’s overall risk and requires measures to prevent erosion and reduce sediment and other pollutants in their discharges.

Municipal Permit Program

The Clean Water Act requires the State to regulate the discharge of stormwater from a number of sources. Large and small municipal sewer system operators must comply with permits that regulate storm water entering their systems under a two-phase system. For Phase I of the MS4 program, these sources include large (population greater than 250,000) and medium (population from 100,000 to 250,000) sized municipalities, most industrial sites, and construction activities on one acre or more.

Being under the jurisdiction of two Regional Boards, the County of Orange (including the OC Flood Control District) and incorporated cities are permittees subject to two Waste Discharge Requirements for discharges of runoff from MS4s. The City of Mission Viejo, which is the location of the Saddleback College campus, is a permittee under SDRWQCB Order No. R9-2009-0002 (NPDES No. CAS0108740). The City of Irvine, which is the location of the IVC campus, is a permittee under SARWQCB Order No. R8-2009-0030 (NPDES No. CAS618030), as amended by Order No. R8-2010-0062. Both Orders require development to control urban runoff (stormwater and non-stormwater) discharges in the Orange County watersheds. The Orders generally require owners of property to use Best Management Practices (BMPs) to achieve the objective of limiting storm flows, sediment transport, siltation, and pollutant loading in all project-related runoff.

Phase II regulates smaller municipalities, including non-traditional small operations, which includes public school campuses (K-12, community colleges, and universities). Phase II is implemented by the General Permit for the Discharge of Storm Water from Small Municipal Separate Storm Sewer Systems WQO No. 2003-0005-DWQ (Small MS4 General Permit), which expired in 2008, but remains in force and is currently undergoing public review in preparation for reissuance. However, in February 2012, SWRCB staff indicated that the reissued General Permit would likely exempt community colleges, similar to the current exemption for K-12 schools. The exemption is subject to concurrence by the State Water Board and U.S. EPA.

3.6.3.2 Regional Hydrology and Drainage Facilities

During precipitation events in urban areas, rainwater picks up and transports pollutants through stormwater conveyance systems, ultimately discharging runoff to “receiving waters.” The same occurs as non-storm runoff from other activities (i.e., vehicle washing, landscape irrigation, pavement cleaning, etc.) flows in sufficient quantities from developed sites and enters the municipal storm drain system. Whether runoff deposits pollutants in stormdrains or transports pollutants to receiving waters, the constituent pollutants will eventually reach the receiving waters.

Saddleback College

For Saddleback College, natural watercourses serving as regional or subregional drainages include Oso Creek (County #L03) and/or Trabuco Creek (#L02). Trabuco Creek flows aboveground along the east boundary of the Saddleback College campus, creating a riverine plant and animal habitat known as the Arroyo Trabuco. Oso Creek at its nearest point is approximately 0.4 mile west of campus. No streams or flood control channels exist on the campus. See section 3.6.3.4 (*Campus Drainage and Stormwater Management*) for a discussion of affected subregional and local facilities.

Trabuco Creek and Oso Creek are watercourses in the Arroyo Trabuco hydrologic unit of the San Juan Creek Watershed. Both are County flood control facilities that receive runoff from numerous regional and subregional stormdrain facilities. Oso Creek is tributary to Trabuco Creek at its confluence approximately two miles south of the campus, and Trabuco Creek is tributary to San Juan Creek (#L01), eventually discharging to the Pacific Ocean at Doheny State Beach in Dana Point.

Irvine Valley College

For IVC, the regional drainage course is San Diego Creek (County #F05) and its tributaries. San Diego Creek runs along and parallel to Barranca Parkway at the campus southern boundary. Stormwater on the IVC campus discharges to San Diego Creek via a system of southerly flowing major stormdrains. The IVC campus is in the Lower San Diego Creek Watershed. San Diego Creek discharges to Newport Bay at Jamboree Road. No streams or flood control channels exist on the campus. See section 3.6.3.4 (*Campus Drainage and Stormwater Management*) for a discussion of affected subregional and local facilities.

3.6.3.3 Water Quality Impairments

Under the federal Clean Water Act (CWA), states have primary responsibility for protecting and restoring surface water quality. Under the CWA section 303(d), State and Regional Water Boards assess water quality monitoring data for California's surface waters every two years to determine if they contain pollutants at levels that exceed protective water quality standards. Water bodies and pollutants that exceed protective water quality standards are placed on the State's 303(d) List, subject to final approval by the U.S. Environmental Protection Agency (USEPA). In some cases, other regulatory programs will address the impairment instead of a TMDL.

Placement of a water body and pollutant on the 303(d) List initiates the development of a Total Maximum Daily Load (TMDL). TMDLs are established at the level necessary to implement the applicable water quality standards. A TMDL requires that all sources of pollution and all aspects of a watershed's drainage system be reviewed, not just the pollution coming from discrete conveyances (known as point sources), such as a discharge pipe from a factory or a sewage treatment plant. "Nonpoint source" pollution (also called polluted runoff) is the release of pollutants from everything other than point sources. These include landscape scale sources such as stormwater and agricultural runoff, and dust and air pollution that find their way into water bodies. Nonpoint source pollution is not typically associated with discrete conveyances.

Federal regulations require that approved TMDLs be incorporated into water quality control plans, or Basin Plans, by the respective Regional Boards and implemented by the permittees and co-permittees to NPDES permits in the region. TMDLs are generally incorporated as Basin Plan amendments. The Basin Plans applicable to Saddleback College and IVC are:

- *Water Quality Control Plan for the San Diego Basin (9)*, September 8, 1994 (With Amendments Effective Prior To April 25, 2007), California Regional Water Quality Control Board San Diego Region
- *Water Quality Control Plan for the Santa Ana River Basin (8)*, January 24, 1995 (Updated February 2008, California Regional Water Quality Control Board Santa Ana Region)

The Basin Plans contain prohibitions, water quality standards, and policies for implementation of those standards. The district is subject to applicable water quality standards and prohibitions presented in the Basin Plans.

In 2007, the USEPA approved the 2006 CWA Section 303(d) List of Water Quality Limited Segments, including those that require TMDLs and those that are being addressed by USEPA-approved TMDLs. CWA Section 305(b) requires each State to report biennially to USEPA on the condition of its surface water quality. The USEPA has issued guidance to States that requires the two reports to be integrated. For California, this combined report is called the California 303(d)/305(b) Integrated Report.

On October 11, 2011, the USEPA issued its final decision regarding the water bodies and pollutants added to California's 2010 303(d) List, which replaces the 2006 303(d) List as California's current 303(d) List. The 2006 stream segments listed below did not change status; however, a four-mile segment of Oso Creek (lower) and 23 miles of (Arroyo) Trabuco Creek were added to the 2010 303(d) List. The San Diego Basin Plan lists the following beneficial use designations for Oso Creek and Arroyo Trabuco Creek:

- WARM: warm freshwater habitat
- COLD: cold freshwater habitat
- REC1: body contact recreation
- REC2: non-body contact recreation
- WILD: wildlife habitat
- AGR: agricultural supply
- IND: industrial service supply

The Saddleback College receiving waters are deemed impaired for the following pollutants/stressors:

TABLE 3.6-1
SADDLEBACK COLLEGE 303(d)-LISTED RECEIVING WATERS

Pollutant (Category)	Potential Source(s)	Proposed TMDL Completion
Oso Creek at Mission Viejo Golf Course – approximately 1 mi. assessed Affected Beneficial Use: Warm Freshwater Habitat		
chloride (salinity)	Source Unknown	2019
sulfates (other organics)	Source Unknown	2019
total dissolved solids (salinity)	Source Unknown	2019
Oso Creek (lower) – approximately 4 mi. assessed (2010 new decisions) Affected Beneficial Use: Warm Freshwater Habitat		
selenium (metals/metalloids)	Source Unknown	2021
toxicity (toxicity)	Unknown Nonpoint Source, Urban Runoff/Storm Sewers	2021
Arroyo Trabuco Creek – approximately 23 mi. assessed (2010 new decisions) Affected Beneficial Use: Warm Freshwater Habitat		
diazinon (pesticides)	Agriculture, Contaminated Sediments, Sources Unknown, Urban Runoff/Storm Sewers	2019
phosphorus (nutrients)	Natural Sources, Source Unknown, Urban Runoff/Storm Sewers	2019
total nitrogen as N (nutrients)	Agriculture, Natural Sources, Unknown Nonpoint Source, Urban Runoff/Storm Sewers	2019
toxicity (toxicity)	Unknown Nonpoint and Point Sources, Urban Runoff/Storm Sewers	2019
Source: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml		

The approximately 7.8-mile segment of San Diego Creek from approximately 4,000 feet upstream of the IVC campus (at Laguna Canyon Road) to its discharge location at the Upper Newport Bay receiving waters is termed "San Diego Creek Reach 1" on the 303(d) list of water quality impairments. The Santa Ana Basin Plan lists the following beneficial use designations for San Diego Creek Reach 1:

- WARM: warm freshwater habitat
- REC1: body contact recreation
- REC2: non-body contact recreation
- WILD: wildlife habitat

The 2006 303(d)-listed stream segments below did not change status in 2010. The Irvine Valley College receiving waters are deemed impaired for the following pollutants/stressors:

TABLE 3.6-2
IRVINE VALLEY COLLEGE 303(d)-LISTED RECEIVING WATERS

Pollutant (Category)	Potential Source(s)	Proposed TMDL Completion
San Diego Creek Reach 1 – approximately 7.8 mi. assessed		
Affected Beneficial Uses: Warm Freshwater Habitat, Water Contact Recreation		
fecal coliform (pathogens)*	Urban Runoff/Storm Sewers	2019
selenium (metalloids)	Source Unknown	2007
toxaphene (pesticides)*	Source Unknown	2019
Pollutant (Category)	Potential Source(s)	Being Addressed by USEPA Approved TMDLs
nutrients (nutrients)*	Source Unknown	1999
pesticides (pesticides)*	Unknown Nonpoint Source	2004
sedimentation/siltation (sediment)*	Source Unknown	1999
* Indicates 303(d) listing prior to 2006		
Source: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml		

The San Diego and Santa Ana Basin Plans cite the following general water quality objectives/criteria for which the 303(d) segments are presently inconsistent:

- Toxic substances shall not be discharged at levels that will bioaccumulate in aquatic resources to levels which are harmful to human health.
- All waters shall be free of toxic substances that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.
- No individual pesticide or combination of pesticides shall be present in the water column, sediments or biota at concentration(s) that adversely affect beneficial uses. Pesticides shall not be present at levels which will bioaccumulate in aquatic organisms to levels which are harmful to human health, wildlife or aquatic organism.
- Water bodies shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect beneficial uses.

Overall, water quality impairment in Newport Bay is a key issue. The SARWQCB has developed TMDLs to address beneficial use impacts caused by sediments, nutrients and pathogens in the Newport Bay Watershed. Virtually all of the pollutants identified for the nearby 303(d) listed waterbodies emanate from agricultural and land development practices, which typically involve substantial ground disturbance and heavy use of pesticides and plant fertilizers. Long-established residential communities, parks, golf courses, schools, and commercial properties also contribute a significant amount of runoff to these waterbodies. Those cumulative effects of improper and/or excessive use of pesticides and fertilizers, uncontrolled soil erosion and sedimentation, and exposure of animal wastes to stormwater have historically resulted in the elevated presence of pollutants in local and regional drainage courses and receiving waters.

The SOCCCD college campuses are more than six miles inland from, and do not discharge to, any waters designated as Areas of Special Biological Significance (ASBS) in the SWRCB's California Ocean Plan. Off of coastal Orange County, the ASBS designation applies to the Robert E. Badham State Marine Conservation Area, Newport Coast, and Heisler Park.

3.6.3.4 Campus Drainage and Stormwater Management

A municipal separate storm sewer system (MS4) is any conveyance or a system of conveyances designed to collect and/or transport storm water, such as, storm drains, manmade channels, ditches, roads w/drainage systems, catch basins, curbs, gutters, etc. This section generally describes the MS4s on the Saddleback College and IVC campuses and their relationship to the municipal MS4s maintained by the County of Orange and/or the cities of Mission Viejo and Irvine.

Saddleback College

The civil design portion of the Loop Road Phase I Report analyzed hydrology over much of the Saddleback College campus, focusing on the 84-acres that comprise two drainage subareas. One subarea drains to an existing 36-inch stormdrain at the campus' southeast corner, and the other drains to a stormdrain (County #L03P01) at the Avery Parkway entrance/exit drive. The primary drainage subareas and facilities are described below.

Loop Road Drainage Area

Existing drainage along the eastern boundary is carried in a concrete swale that extends about 1,700 feet from the southeast corner of parking Lot 5A to the southeast corner of the campus. Due to the amount of vegetation growing in the 1,700-foot-long concrete drainage swale, its conveyance capacity has diminished over time. Section 3.8 (*Biological Resources*) discusses the riparian characteristics of, and mitigation requirements for, the drainage swale.

Approximately 39 acres drain to the southeast corner of the campus, including 16 subareas encompassing and adjacent to the proposed Loop Road alignment. Stormwater is channeled into a 36-inch reinforced concrete pipe (RCP), which extends a short distance to an off-campus point where it begins to slope steeply down into the canyon bottom. At that point, it transitions to a corrugated metal pipe (CMP) that drains to Trabuco Creek (County flood control facility L02) on Rancho Mission Viejo property. The off-campus CMP section of that drainpipe has been damaged by slope erosion and the district plans to repair it along with the slope. Preliminary engineering design indicates that the CMP would be removed entirely and replaced with RCP supported by anchors down the slope. Currently there is no Trabuco Creek outfall on this line; however, a new outfall will be included in the repair plans. Plans for that drainage and erosion remediation project are in the design phase. The project is not part of the FMP, nor within the scope of this program EIR, and will require further agency review, including resource agency permitting and CEQA analysis.

There is also an existing catch basin at a low point about 300 feet west of the southeast corner of the campus. Due to an inadequately sized 18-inch culvert and lack of inlet capacity, flooding occurs frequently in this area of parking Lot 1, causing a threat of localized flooding to the residential properties to the south. The district is planning flood control facility improvements to correct that structural drainage deficiency, as discussed in section 3.6.3.1 (*Hydromodification and Runoff*).

Avery Parkway Drainage Area

Another 45 acres of on-campus drainage area in the central and southern portions of the campus drains to the stormdrain (County #L03P01) at the Avery Parkway entrance/exit drive. On-campus street flows are conveyed to three curb inlets at the entrance/exit road intersection with College Drive East/West, and natural surface flows are conveyed to a slope drain and drop inlet just north that same intersection. Both street and natural flows are routed to the L03P01 stormdrain in Avery Parkway, which varies in diameter from 27 inches at the campus to 66 inches where it crosses beneath I-5 and ultimately discharges to the Oso Creek Channel (County #L03), about 0.4 mile west of the campus.

College Drive West Drainage Area

The northern and western portions of the campus, including slopes, open spaces, parking lots and building areas, generally drain to and are contained within the paved sections of on-campus roadways. Drainage facilities include curb and gutter, concrete swales, slope drains, catch basins and various on-campus stormdrains. Those facilities direct storm flows toward College Drive West and the southern portion of parking Lot 10, where curb inlets and catch basins connect to an on-campus 27-inch RCP stormdrain (County #L03P03). That facility becomes a 48-inch RCP west of the campus, conveying storm flows westerly under Marguerite Parkway and I-5, eventually discharging to Oso Creek (L03).

Existing pervious and impervious areas were estimated by characterizing and quantifying the surface features on the Saddleback College campus, as follows:

**TABLE 3.6-3
EXISTING DRAINAGE SURFACE TYPES – SADDLEBACK COLLEGE**

Pervious Surfaces	Acreage
Athletic Fields	18
Landscape/Open Space	75
<i>Subtotal</i>	93
Impervious Surfaces	Acreage
Buildings	13
Paved Parking	36
Roads	15
Walkways/Hardscape	16
<i>Subtotal</i>	80
Total	173

Section 3.6.3.1 (*Hydromodification and Runoff*) assesses the anticipated changes in impervious surfaces on campus and the likely effects on the above-described drainage areas and flood control facilities.

Irvine Valley College

Existing pervious and impervious areas were estimated by characterizing and quantifying the surface features on the IVC campus, as follows:

**TABLE 3.6-4
EXISTING DRAINAGE SURFACE TYPES – IRVINE VALLEY COLLEGE**

Pervious Surfaces	Acreage
Athletic Fields	10.0
Landscape/Open Space	39.9
<i>Subtotal</i>	<i>49.9</i>
Impervious Surfaces	Acreage
Buildings	7.8
Paved Parking	23.3
Roads	7.3
Walkways/Hardscape	12.5
<i>Subtotal</i>	<i>50.9</i>
Total	100.8

At present, the IVC campus has about equal coverage of pervious and impervious surface areas. According to the FMP, the lack of topographic relief and the minimal slopes on the IVC campus impede stormwater movement and contribute to drainage deficiencies that can result in areas of annual flooding. These impacts can be detrimental to function and durability of paved areas such as parking, and will require regular maintenance and corrective work. There are no known capacity deficiencies in downstream flood control facilities.

San Diego Creek (#F05) runs along and generally parallel to Barranca Parkway, which is about 400 feet from the campus southern boundary. Stormwater on the IVC campus primarily flows west/southwest to a 30- to 72-inch RCP stormdrain in Jeffrey Road. To a lesser extent, runoff at the east campus boundary may flow to a 60- to 90-inch RCP line (#F05P04). Runoff from those stormdrains enters the San Diego Creek flood channel.

As an approved project in the final engineering phase, the Barranca Parkway Access Road is designed to traverse a bermed portion of City-owned natural area that was created when San Diego Creek was realigned as part of the construction of Barranca Parkway between Jeffrey Road and Sand Canyon Avenue. That project resulted in a remnant of San Diego Creek being isolated north of Barranca Parkway. The City preserved that creek remnant and created downstream detention basins that are now vegetated with mature riparian species. The basins thus serve the dual purposes of flood control and riparian habitat. The bermed area atop which the new IVC access road will be constructed separates the downstream basin from the upstream basin. Stormflows pass under the berm via 18-inch and 24-inch RCP storm drains and ultimately discharge from the northernmost basin to a 36-inch RCP stormdrain that connects to the City's stormdrain system.

3.6.3.5 Floodplains

Portions of the Trabuco Creek corridor are located in floodplains, as mapped by the Federal Emergency Management Agency (FEMA) based on engineering and hydrologic studies, including the flood zone immediately east of the Saddleback campus. However, the campus is elevated approximately 130 feet above, and over 300 feet horizontal from, the nearest limit of the Special

Flood Hazard Area (SFHA) and is outside of any flood risk zone. FEMA's Flood Insurance Rate Map (FIRM) Panel 06059C441J dated December 3, 2009 indicates that the campus is in Zone X (No Flooding). There is no potential impact to the site by the Trabuco Creek floodway or any high-risk flood zone.

According to FEMA maps for IVC (FIRM Panel Nos. 06059C0291J and 06059C0292J) and ATEP (FIRM Panel No. 06059C0279J), those campuses are also outside the limits of special flood hazard areas subject to inundation by the 1 percent annual chance flood (i.e., the 100-year floodplain)

The nearest flood hazard zone to IVC is the San Diego Creek channel, which completely contains the storm flows generated by the 1 percent annual chance flood. The IVC campus and all projects within the scope of the 2011 FMP are outside the 100-year flood hazard area and will not encroach on the San Diego Creek floodway. Since there will be no impact associated with the placement of housing or any structure within a 100-year flood hazard area, further discussion in the Program EIR is not necessary.

3.6.3.6 Groundwater

Saddleback College

The Saddleback College campus is about 130 feet above any near-surface groundwater associated with Trabuco Creek to the immediate east. Further, based on seven geotechnical reports prepared for campus projects between 2002 and 2010, groundwater has not been found in any borings or test excavations. Therefore, groundwater is considered absent from the campus for purposes of evaluation in this program EIR.

Irvine Valley College

The IVC campus is within the Irvine sub-basin of the Orange County Groundwater Basin. Based on a review of the State of California Seismic Hazard Zone report and Seismic Hazard Zone map for the Tustin Quadrangle, the highest historic groundwater level at the campus is shown as approximately 50 feet below the existing ground surface. (AGI, 2005a) However, six geotechnical reports have been prepared for IVC campus projects since 2005, documenting groundwater levels ranging from 20 feet below ground surface (bgs) in the center of the campus to 30 feet bgs at the Life Sciences Building currently under construction at the eastern boundary. Groundwater was encountered at 26 feet bgs in the vicinity of the former San Diego Creek at the location of the Barranca Parkway Access Road.

The IVC campus also is within the horizontal extents of a one-by-three mile plume of groundwater contamination emanating from the former El Toro Marine Corps Air Station (MCAS). The trichloroethylene (TCE) contamination is about 150 feet deep beneath the former MCAS base and 300 to 700 feet deep in the Irvine community area. There are no drinking water wells located in the TCE plume and the IVC campus does not have any groundwater wells. Remediation of the plume is an ongoing operation conducted by the Irvine Ranch Water District.

3.6.2 IMPACT SIGNIFICANCE CRITERIA

Based on the criteria presented in the CEQA Guidelines, Appendix G (Environmental Checklist), significant hydrology and water quality impacts would result if the Proposed Project would:

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

- *Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems.*
- *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 that would result in substantial erosion or siltation on- or off-site.*
- *Create or contribute runoff water that would provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality.*
- *Violate any water quality standards or waste discharge requirements.*
- *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.*
- *Place within a 100-year flood hazard area structures that would impede or redirect flood flows.*
- *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 a 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).*
- *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.*
- *Be subject to inundation by seiche, tsunami, or mudflow.*

3.6.3 IMPACTS FOUND TO BE LESS THAN SIGNIFICANT

Development resulting from the 2011 FMPs will be subject to numerous regulatory programs for the protection of drainage features and surface and groundwater quality. Compliance with these provisions and with requirements of the Regional Water Quality Control Boards typically ensure that development will not violate water quality standards or adversely affect drainage. While compliance is assumed at this programmatic analysis level, each project that implements the FMPs must be reviewed individually to confirm compliance with applicable standards.

3.6.3.1 Hydromodification and Runoff

- *The Proposed Project would not substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off- site.*
- *The Proposed Project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems.*

Saddleback College

The civil design portion of the Loop Road Phase I Report provided post-development hydrology calculations necessary for sizing and determining the adequacy of new stormwater conveyance and detention systems in the Loop Road and Avery Parkway drainage areas. According to the Phase I Report, all new storm drains are to be designed for 100-year storms.

Loop Road Drainage Area

The existing concrete swale along the east edge of campus will be replaced by a constructed underground stormdrain ranging in size from 24-inch diameter to 36-inch diameter. The new stormdrain will extend from about the southeast corner of existing parking Lot 5A to a proposed new

36-inch stormdrain at the southeast corner of the campus. In the northeastern portion of the campus, an existing concrete V-ditch collects runoff from parking Lots 5 and 5A, the tennis courts, and another 7.5 acres of slopes and road surfaces farther north along College Drive East. The Loop Road project will construct a curb inlet with storm filter, catch basin, and a 24-inch reinforced concrete pipe (RCP) stormdrain at the junction with the drainage structures at the southeast corner of Lot 5A. Combined with runoff from the Loop Road north of that point, flows will enter a stormfilter inlet to a new 30-inch RCP that will run about 1,200 feet south in the Loop Road. At its junction with a new 24-inch RCP collector, flows from both stormdrains will continue south in the new 36-inch RCP segment. Having collected runoff from proposed Loop Road and the campus development west of the road, the 36-inch RCP will convey accumulated flows about 800 feet south to the proposed new 36-inch stormdrain at the southeast corner of the campus.

As indicated previously, the CMP section of the existing, off-campus 36-inch drainpipe has been damaged by slope erosion, so the district plans to repair the drainage facility and the slope. Preliminary engineering design indicates that the CMP would be removed entirely and replaced with RCP supported by anchors down the slope. Currently there is no Trabuco Creek outfall on this line; however, a new outfall will be included in the repair plans. Plans for that off-campus drainage and erosion remediation project are in the design phase. The project is not part of the FMP, nor within the scope of this program EIR, and will require further agency review, including resource agency permitting and CEQA analysis.

In the 2011-2016 planning horizon, runoff from about six acres of reconfigured parking Lot 1, combined with runoff from parking Lots 2 and 3 and other hardscape in The Village, will drain to the south end of campus where inadequate drainage poses a localized flooding threat to residential properties to the south. In the long-term, a proposed new surface parking lot will further increase the impervious area that contributes to the same drainage concentration location. To correct the existing and future flood control deficiencies, the existing 18-inch culvert will be replaced with a 30-inch diameter RCP; the existing catch basin will be replaced with one of greater capacity; and a second catch basin will be installed on the north side of the proposed new Loop Road. Design storm flows will be captured in a large underground vault with stormfilter cartridges before discharging to the proposed 30-inch RCP, which will run east in the proposed Loop Road to the proposed new 36-inch stormdrain that will outlet to Trabuco Creek. In addition to those facility improvements, a sound wall will be built along the southerly property line to mitigate vehicular traffic noise into the adjacent neighborhood. This wall will also be designed and built as a flood barrier to withstand a surcharge for a two (2)-foot depth of water.

Overall, the 39-acre Loop Road drainage area will contribute about 126 cubic feet per second (cfs) of runoff to the proposed 36-inch RCP during a 100-year design storm event. Table 3.6-5 shows that the increased paved parking area and consequent loss of open space and infiltration capacity will be the primary contributors to storm runoff quantity and quality in the drainage area. Saddleback College will work with Rancho Mission Viejo to accommodate proper runoff, which includes obtaining a drainage easement for the work and providing erosion protection at the Trabuco Creek outfall. The off-campus stormdrain and outfall project, which is not part of the FMP or this program EIR, is in the design phase and will be subject to resource agency permit conditions and CEQA compliance prior to construction.

**TABLE 3.6-5
PROPOSED LOOP ROAD DRAINAGE AREA CHANGE IN IMPERVIOUS SURFACES**

Development Type	Existing Acres	Proposed Acres	Impervious Net Change
Athletic Fields	3	4	-1 ac.
Buildings	2	1	-1 ac.
Landscape/Open Space	10	7	+3 ac.
Paved Parking	14	19	+5 ac.
Roads	5	5	0
Walkways/Hardscape	6	3	-3 ac.
Total	39	39	+3 ac.

Avery Parkway Drainage Area

The approximately 45-acre drainage area in the central and southern portions of the campus will contribute about 96 cfs to stormdrain L03P01 at the Avery Parkway entrance/exit drive during a 100-year storm. Although a larger drainage area with a 3-acre increase in impervious surfaces, the 13 tributary subareas have a higher percentage of open space and natural vegetation than those in the Loop Road drainage area, so the total runoff and time of concentration is less, even with the proposed campus buildout. Off-site and on-site drainage patterns are shown in the Phase I civil engineering plans available for review at the district offices.

**TABLE 3.6-6
STORMDRAIN L03P01 DRAINAGE AREA CHANGE IN IMPERVIOUS SURFACES**

Development Type	Existing Acres	Proposed Acres	Impervious Net Change
Athletic Fields	8	8	0
Buildings	4	4	0
Landscape/Open Space	17	16	+1 ac.
Paved Parking	7	9	+2 ac.
Roads	3	2	-1 ac.
Walkways/Hardscape	5	6	+1 ac.
Total	45	45	+3 ac.

College Drive West Drainage Area

The 2011 FMP calls for some new development in the northern and western portions of the campus, but the buildings and parking structure are almost exclusively replacing surface parking lot areas (see Table 3.6-7). Although the rooftop catchment areas are impervious surfaces, the FMP calls for capture and detention and/or reuse of roof drainage for non-potable purposes, such as landscape irrigation. Therefore, new development in those areas is not expected to increase downstream flow volumes.

TABLE 3.6-7
STORMDRAIN L03P03 DRAINAGE AREA CHANGE IN IMPERVIOUS SURFACES

Development Type	Existing Acres	Proposed Acres	Impervious Net Change
Athletic Fields	9	9	0
Buildings	6	10	+4 ac.
Landscape/Open Space	40	39	+1 ac.
Paved Parking	15	12	-3 ac.
Roads	7	7	0
Walkways/Hardscape	5	6	+1 ac.
Total	82	82	+3 ac.

Over the projected 2031 planning horizon envisioned by the 2011 FMP, impervious surfaces on the Saddleback College campus will increase by approximately 8 to 9 acres over current conditions (see Table 3.6-8 below). The increase does not unduly burden one particular drainage area on campus, and the one most affected (Loop Road drainage area), is subject to stormdrain and water quality improvements in the 2011-2016 planning horizon. The 2011 FMP outlines plans to harvest rainwater, increase native vegetation, reduce turf area, increase stormwater detention, and improve the infiltration capacity of existing landscape areas, all of which are expected to reduce overall runoff quantities and improve water quality.

TABLE 3.6-8
TOTAL CHANGE IN IMPERVIOUS SURFACES – SADDLEBACK COLLEGE

Pervious Surfaces	Existing Acreage	Proposed Acreage	Impervious Net Change	Percent Change
Athletic Fields	18	20	-2 ac.	
Landscape/Open Space	75	69	+6 ac.	
<i>Subtotal</i>	93	89	+4 ac.	+2%
Impervious Surfaces	Existing Acreage	Proposed Acreage	Impervious Net Change	Percent Change
Buildings	13	15	+2 ac.	
Paved Parking	36	41	+5 ac.	
Roads	15	13	-2 ac.	
Walkways/Hardscape	16	15	-1 ac.	
<i>Subtotal</i>	80	84	+4 ac.	+2%
Total*	173	173	+8 ac.	+4%
*Total campus net change differs from the sum of individual drainage area impervious surfaces due to rounding.				

Irvine Valley College

Some IVC campus projects have an identified drainage component, while others involve conversion of large hardscape (impermeable) areas to native landscape (permeable) area. Renovations to the A Quad and the soccer and practice fields will include drainage upgrades. At full implementation of the FMP, all stormdrains will be upgraded campus-wide. Additionally, each new building's roof drainage,

associated pavement, grading, and planting areas are proposed to be designed to collect, cleanse and reuse stormwater.

Over the projected 2031 planning horizon, impervious surfaces on the IVC campus will increase by approximately 27 percent over current conditions (see Table 3.6-9). This will be largely due to the proposed development of the agricultural area at the southwest corner of the campus, but also because of the intensification of buildings, walkways, roads, and parking lots. With regard to the agricultural area, by 2016, the Phase I surface parking lot and new Fine Arts Complex will be built; by 2021, the Phase II parking lot and site improvements will be built; and by 2031, the new parking structure will be complete. With each phase of development, engineering hydrology and hydraulics calculations will determine detention/retention design, stormdrain sizing, and net runoff quantities.

TABLE 3.6-9
TOTAL CHANGE IN IMPERVIOUS SURFACES – IRVINE VALLEY COLLEGE

Pervious Surfaces	Existing Acreage	Proposed Acreage	Impervious Net Change	Percent Change
Athletic Fields	10.0	9.4	+0.6 ac.	
Landscape/Open Space	39.9	26.9	+13 ac.	
Pools	–	0.2	-0.2 ac.	
<i>Subtotal</i>	49.9	36.3	+13.4 ac.	+13.3%
Impervious Surfaces	Existing Acreage	Proposed Acreage	Impervious Net Change	Percent Change
Buildings	7.8	12.8	+5.0 ac.	
Paved Parking	23.3	27.9	+4.6 ac.	
Roads	7.3	8.0	+0.7 ac.	
Walkways/Hardscape	12.5	16.1	+3.6 ac.	
<i>Subtotal</i>	50.9	65.0	+13.9 ac.	+13.7%
Total*	100.8	101.3	+27.3 ac.	+27%
*Proposed acreage total differs from existing due to off-campus construction of Barranca Access Road and does not indicate expansion of the IVC campus.				

The Proposed Project involves the phased development of planned facilities at the Colleges, including demolition of some existing facilities to provide space for planned facilities. On undeveloped land, this level of development would likely alter the existing drainage patterns of rainfall absorption and surface water runoff, potentially causing an increase in rates of stormwater discharge. However, the 2011 FMPs will result in buildout of campuses that are primarily developed.

The 2011 FMPs plan infrastructure upgrades that are based on years of observation and maintenance, with the benefit of having experienced most, if not all, of the physical demands that will be placed upon those facilities in the future. In planning and developing the campus drainage infrastructure, the district will continue to be consistent with the following general hydrology and drainage analysis guidelines provided by the County of Orange (OC Public Works) during the NOP comment period:

- Projects that increase impervious areas and/or improve local drainage facilities will determine the increased amount of runoff entering local and regional drainage facilities, including natural watercourses. A discussion of such impacts will be supported by hydrology and hydraulic analyses.

- Hydrologic, hydraulic and sediment transport analyses will evaluate and quantitatively compare runoff volumes, peak flow rate increases, adequacy of existing drainage facilities, and erosion and scour issues to ensure existing conditions are not worsened in the post-project condition. All hydrologic, hydraulic and sediment transport studies will conform to the current guidelines and criteria as specified in the Orange County Hydrology Manual (OCHM), Addendum No. 1 to the OCHM, and the Orange County Flood Control District (OCFCD) Design Manual.
- Any/all work within or adjacent to any OCFCD right-of-way for regional flood control facilities will be conducted so as not to adversely impact a channel's structural integrity, hydraulic flow conditions, access and maintainability. Furthermore, all work within OCFCD's right-of-way will be conducted only after an encroachment permit for the proposed work has been obtained from the County.

The 2011 FMPs also outline plans to harvest rainwater, increase native vegetation, reduce turf area, increase stormwater detention, and improve the infiltration capacity of existing landscape areas, all of which are expected to reduce overall runoff quantities and improve water quality. Overall, therefore, the Proposed Project would not substantially alter existing drainage patterns, substantially increase the rate or amount of surface runoff, or contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems.

3.6.3.2 Water Quality

Erosion and Siltation

- *The Proposed Project would not 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 that would result in substantial erosion or siltation on- or off-site.*

The land areas of both campuses include drainage channels and stormdrains that are tributary to Oso Creek and Trabuco Creek (Saddleback College receiving waters) and San Diego Creek (IVC receiving waters). Those watercourses serve as regional storm channels, accepting runoff from numerous subregional water facilities. No aspects of the 2011 FMPs would modify drainage patterns on either campus, or affect the course of off-site waterways, in a way that would cause substantial erosion or siltation to occur. Section 3.8 (*Biological Resources*) describes the circumstances under which potentially impacted drainages would require permits from CDFG, USACE, or RWQCB. Under all of those circumstances, erosion and siltation control measures would be part of the permit conditions.

The 2011 FMP design team and the Colleges recognize that preservation and minimum-disturbance activities are generally more cost-effective than revegetation practices or structural controls, especially long-term. The 2011 FMPs incorporate design features to ensure that stormwater runoff is not adversely concentrated by development and does not increase the potential for downstream erosion. The drainage and water quality provisions in the FMPs also reflect the knowledge that stormdrain systems do not promote the same beneficial uses as a natural ecosystem. Therefore, the 2011 FMPs intend to maintain natural drainage patterns and upgrade campus drainage systems in ways that will not result in substantial erosion or siltation on- or off-site.

Polluted Runoff

- *The Proposed Project would not create or contribute runoff water that would provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality.*
- *The Proposed Project would not violate any water quality standards or waste discharge requirements.*

Urban development degrades water quality through a complex of interrelated causes and effects, which, when unmanaged, adversely affects the physical, chemical, and biological integrity of the watersheds in which they occur. The primary potential adverse impacts of urban development projects on water quality are:

- The direct physical impacts to aquatic, wetland, and riparian habitat and other beneficial uses;
- Generation of construction-related and post-construction urban pollutants;
- Alteration of flow regimes and groundwater recharge as a result of impervious surfaces and storm drain collector systems; and,
- Disruption of watershed level aquatic functions including pollutant removal, floodwater retention, and habitat connectivity.

These factors have historically resulted in a cycle of destabilized stream channels, poor water quality, and engineered solutions to disrupted flow patterns, culminating in loss of natural functions and societal values in the affected basins. The number and variability of the pathways through which water quality degradation can occur complicates analysis, but understanding how these pathways operate within the specific circumstances of the SOCCCD FMPs is essential to effectively mitigating the adverse effects. In order to evaluate potential impacts, each successive project under the 2011 FMPs must undergo evaluation to determine how it will avoid or minimize each potential cause of water quality degradation; what effects will remain unmitigated through individual project design; and the magnitude of the remaining adverse effects, if any.

Common pollutants on or in the immediate vicinity of the college campuses include oil and grease from roadways and parking lots, pesticides from lawns, sediment from construction sites, and carelessly discarded trash, such as cigarette butts, paper wrappers and plastic bottles. These pollutants are deposited into nearby waterways, discouraging recreational use of the resource, and interfering with the habitat for fish, other aquatic organisms, and wildlife.

The SOCCCD colleges employ operations, maintenance, custodial, and grounds staff for day-to-day operations. This includes building maintenance (cleaning, painting, repairs); daily cleaning of common buildings; grounds maintenance; small construction jobs; and various repair and maintenance activities. Facilities management staff and outside contractors perform electrical, plumbing, roofing, asphalt, exterior building painting, sewer line cleaning, utility repairs, and janitorial duties. The committee that developed the Storm Water Management Plan at the University of California, Irvine (UCI, 2003) relied on their knowledge of the day-to-day campus operations to identify activities and sources of potential pollutants of concern. The Saddleback College and IVC campuses will likely have similar sources and pollutants, as follows:

Activity/Source	Pollutants of Concern
Building maintenance (washing, graffiti abatement)	Wash water, paint chips, cleaning products, dirt and sediment
Chemical spills	Various cleaning compounds, diesel, paint, hazardous materials, vehicle fluids
Construction activities	Concrete, drywall, paint, sediment
Erosion	Sediment, organic matter
Food service operations	Wash-water, food residue, oil and grease
Grounds maintenance	Green waste, fuel, oil, pesticides, herbicides, sediment
Impervious areas	Increased flows and pollutant loading
Irrigation runoff	Chloramines, fertilizers, pesticides
Litter and debris	Litter and debris
Loading/unloading areas	Petroleum products, fertilizers, pesticides, herbicides, cleaning solutions, paint
Outdoor storage of raw materials	Sand, asphalt, soil, pesticides, herbicides, fertilizer, paint, solvents, fuel
Painting (indoor)	Paint or rinse water (oil and water based), paint thinner
Parking lot runoff	Oil/grease, litter, heavy metals
Roof runoff	Particulate matter and associated pollutants
Sewer line blockages	Raw sewage
Sewer line seepage	Raw sewage
Trash storage areas	Organic materials, hazardous materials
Vehicle and equipment washing (staff)	Cleaning products, oil/grease, vehicle fluids
Utility line maintenance and repairs (water/ irrigation/ sewer)	Chloramines, chlorine, sediment, adhesive cements, primers
Pet feces	Coliform bacteria
Source: University of California, Irvine. Storm Water Management Plan. March 2003.	

Best management practices will be developed within the FMPs and regulatory frameworks to address the pollutant sources and activities. Consistent with local and State requirements, the 2011 FMP projects will identify features for both the short-term (construction) and the post-construction periods that will control stormwater on-site or prevent pollutants from non-point sources from entering and degrading surface waters and groundwater. The FMPs also incorporate water conservation and management guidelines that call for site and building designs to reduce water use and wastewater production by means such as:

- Designing new pavement and planting areas to collect, cleanse, and reuse stormwater
- Using native and adaptive landscape planting to minimize water requirements
- Irrigation system minimization and efficiency
- Capturing and reusing rooftop rainwater when possible
- Reclaiming water for non-potable uses
- Installing water conserving plumbing fixtures
- Incorporating bioswales in parking and other hardscape areas to reduce water run-off
- Installing sensors to control fixture operation

Overall, the increased use of vegetated areas for stormwater management and infiltration on-site will filter sediment and pollutants, regulate the volume of runoff from land surfaces, and minimize adverse effects on downstream facilities and receiving waters. Minimum-disturbance activities (such

as preservation of vegetation and grade) are also proposed to protect and preserve natural drainage systems. These practices will emulate and preserve the natural hydrologic cycle, moving stormwater slowly over large permeable surfaces to allow it to percolate into the ground.

As determined necessary to meet temporary (construction) and long-term runoff management requirements, the civil engineering and architectural designers for projects implemented under the 2011 FMPs will conduct drainage quantity assessments and/or water quality analyses. The range of requirements will be determined by the regulations and design criteria that are applicable at the time of project planning and design. Regulations will include the construction period and post-construction provisions of the Statewide General Construction Permit. Stormwater management facilities may also be subject to evaluation under guidelines set forth by the County of Orange, the cities of Irvine and Mission Viejo, and/or the Rancho Mission Viejo.

Generally, the water quality and drainage capacity information to be provided and issues to be evaluated at the project level will include, but not be limited to:

- Identification of downstream hydrologic conditions of concern that may be affected by the project, including related changes in runoff volume and velocity; sediment load, makeup or characteristics; reduced infiltration; and/or increased flow, frequency, duration, and peak(s) of storm runoff.
- Descriptions of project characteristics with respect to water quality issues, such as project site location in a given watershed, site acreage, known ground contamination, known groundwater contamination, and anticipated change in percent impervious surface area.
- Identification of all downstream receiving waters that may receive contributory runoff from the project site.
- Descriptions of the sensitivity of the receiving waters, including identification of Areas of Special Biological Significance, water bodies with Total Maximum Daily Loads (TMDL), and Clean Water Act Sec. 303(d) listed impaired water bodies.
- Characterization of the potential water quality impacts from the proposed project and identification of the anticipated pollutants to be generated by the project. If a proposed project has the potential to create a major new stormwater discharge to a water body with an established TMDL, the engineering hydrology and water quality review will determine whether quantitative analysis is necessary to determine the anticipated pollutant loads in the stormwater discharges to the receiving waters.
- Evaluation of applicable thresholds of significance as set forth in CEQA documents, or as established in regulations or resource plans, and assessment of project impact significance to water quality based on those thresholds.

Short-Term Construction Impacts

The Regional Water Quality Control Board has determined that projects such as the proposed FMP can potentially have significant impacts with respect to water quality, depending on how well the project is managed. Because the 2011 FMPs will be implemented in phases over 20 years, best management practices (BMPs) must be implemented for each site-specific project. Therefore, project or phase-specific BMPs and stormwater pollution prevention plans (SWPPPs) must be written. One global Project SWPPP is insufficient to protect water quality.

In general, developing a SWPPP for undeveloped land must consider the significant size, drainage, and containment issues associated with dirt, sand, debris and other particulate matter that are inherent with raw land construction activities. Large pieces of equipment such as bulldozers, graders, waste haul trucks, deliveries by suppliers, storage areas for raw construction materials, lay-

down areas, etc. must be included in the overall development of the construction SWPPP. Significant stormwater run-off issues are of concern due to unpaved construction sites and constant movement of sediment materials on-site for various construction phases (significant land disturbances) and addressing sediment load and containment of potential oils, paints, solvents, etc. are of priority. Developing, installing and implementing a construction SWPPP may require the need for specialists in fields such as civil engineering, engineering geology, landscape architecture, etc., depending on the size of the construction project, the land site characteristics, the geology of the area, and extent of planned construction.

As projects and grading plans progress through the planning and engineering phases, the colleges will evaluate the need for permits for those construction-related activities with the potential to affect water quality or hydrology in federal or State waters. In addition, the colleges will prepare project-specific SWPPPs detailing source controls and structural/non-structural BMPs for the management of sediment and construction-related water contaminants. The colleges will select BMPs based on published engineering and design guidance, such as the Stormwater Best Management Practice Handbooks produced by the California Stormwater Quality Association (CASQA).

Long-Term Impacts

Projects implemented under the 2011 FMPs will be designed so that drainage channels and waters of the U.S. and State will be avoided to minimize impacts and, where necessary, mitigation will replace the functions and values of impacted drainages. These design principles are demonstrated in the drainage and water quality provisions for the proposed Loop Road project at Saddleback College.

Given the variable conditions on the Saddleback College and IVC campuses, different FMP projects might have a range of candidate BMPs to address stormwater management issues arising from site-specific conditions, hydrologic conditions of concern, and potential pollutants of concern. The LEED building certification process described in each FMP provides an implementation framework for the types of water quality protection and drainage improvement measures listed above, and will incorporate the principles and practices from initial design to contractor specifications and construction documents to long-term monitoring and sustainability evaluations.

As part of new LEED projects and future FMP updates, the district will continue to explore the feasibility of reducing or eliminating stormwater runoff and reducing the use of potable water. The district will evaluate stormwater capture reuse possibilities and onsite wastewater treatment alternatives for an integrated approach to water reuse at the college campuses. Criteria for evaluation will include, but not be limited to:

- 1) reducing or eliminate stormwater runoff to help accomplish the college sustainable development approach;
- 2) helping meet the upcoming Phase II stormwater regulations for the State of California;
- 3) reducing the use of potable water on the college campuses;
- 4) providing cost savings;
- 5) providing an education and outreach resource at the college.

The evaluations will:

- quantify stormwater runoff, irrigation needs, and other water uses on the college campus;
- review regulatory requirements including the anticipated requirements of the new California Phase II Stormwater Permit and review of the California Plumbing Code and other regulations related to the reuse of stormwater; and

- present alternatives for stormwater capture and reuse and reduction of potable water.

Planning and engineering phase studies will specifically address how hydromodification might occur under each subsequent FMP project. The plans deriving from those studies will implement the following water quality strategies that are broadly outlined in the FMPs:

Site Design/Development Strategies

- Maximize infiltration of stormwater runoff on-site and prevent increase in rate of stormwater leaving the site.
- Design an overall stormwater management plan to include high absorption landscape areas, bio-retention areas, swales, or rain gardens.
- Protect native topsoil during construction so it can support the future landscape, reduce stormwater runoff, reduce fertilizer and pesticide use, and conserve irrigation water.
- Incorporate existing mature trees and shrubs into new developments.
- Design landscapes to allow irrigation and stormwater to soak into the soil and recharge groundwater systems and filter out pollutants.
- Collect rainwater for reuse or slow release, possibly in conjunction with gray water, for waste conveyance and/or irrigation.
- Minimize concrete paving and stormwater runoff by using porous paving materials.
- Use permeable paving surfaces for drives and parking lots.
- Use xeriscaping (plants suited for dry arid climates) and water-efficient landscaping.
- Prevent soil erosion before, during, and after construction by controlling stormwater runoff and wind erosion. Consider silt fencing, sediment traps, construction phasing, stabilization of slopes, and maintaining and enhancing vegetation and ground cover.
- Protect hillsides using adequate erosion control measures such as hydroseeding, erosion control blankets, and/or sedimentation ponds to collect runoff.

Building Composition/Architecture Strategies

- Use of natural materials such as stone, lumber, earth, etc. to reduce pollution levels in the environment.
- Specify materials that do not contain formaldehyde, organic solvents, VOCs and chlorofluorocarbons (CFCs).

Implementation of the listed strategies for water quality protection will ensure that impacts do not exceed a level of significance.

3.6.3.3 Flood Hazard Potential

- *The Proposed Project would not 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.*
- *The Proposed Project would not place within a 100-year flood hazard area structures that would impede or redirect flood flows.*

Trabuco Creek and San Diego Creek Flood Hazards

As described in section 3.6.3.5 (*Floodplains*), the Saddleback College and IVC campus areas nearest to Trabuco Creek and San Diego Creek, respectively, are not located within a Special Flood Hazard Area subject to inundation by the 100-year flood, as indicated on official FEMA flood maps. The

2011 FMPs would not place housing or structures within a 100-year flood hazard area, and no related impacts would occur.

Earthquake-Induced Flooding

- *The Proposed Project would not 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.*

Earthquake-induced flooding can result from failure of dams or other water-retaining structures resulting from earthquakes. However, the campuses are not within a levee or dam inundation area, or other floodplain that could potentially expose the campuses to flooding hazards. No impacts will occur.

- *The Proposed Project would not be subject to inundation by seiche, tsunami, or mudflow.*

The SOCCCD campuses are not located near any ocean, harbor, bay, lake, river or canal that could be the source of any tsunami or seiche hazard. The IVC campus is located on flat topography in an urbanized area and is not subject to any mudflow hazards. The Saddleback College campus is located above a canyon and will not be subject to mudflows. No impacts will occur.

3.6.3.4 Groundwater

- *The Proposed Project would not 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 a local groundwater table level.*

Groundwater supplies will not be affected by implementation of the 2011 FMPs. The colleges do not withdraw groundwater and there are no production wells on either campus. The FMPs will not deplete groundwater supplies or interfere with groundwater recharge.

3.6.4 POTENTIAL IMPACTS AND MITIGATION MEASURES

No potentially significant impacts were identified; therefore, no mitigation measures are required.

3.6.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The Proposed Project will not result in any significant adverse impacts related to hydrology or water quality. No mitigation measures are required.

3.6.6 CUMULATIVE IMPACTS

Cumulative drainage, flooding, and water quality impacts are those resulting from the range of land use activities taking place in the San Diego Creek and San Juan Creek watersheds. Upstream land use changes resulting from cumulative development will create new impervious surfaces, increase stormwater runoff rates, and contribute to downstream sedimentation and urban pollutant runoff. Detailed hydrology and hydraulics studies will continue to analyze land use modifications and specify necessary flood control and water quality improvements on a project-by-project basis. Those incremental changes are the subject of the numerous water quality plans and programs that address the watershed and that contain cumulative development assumptions. By adhering to regulatory programs designed to protect water resources from adverse impacts, the effects of cumulative upstream development are intended to be substantially minimized.

Insofar as the colleges will disturb soils with new development and use pesticides and fertilizers on campus landscaped areas, the potential exists for continued and increased contribution of pollutants to the adjacent 303(d) listed water bodies. If, however, the colleges employ practices that promote use of native plant species that minimize water consumption and maintenance; select and use minimal amounts of “green” pesticides and fertilizers, including integrated pest management (IPM) practices; and follow readily available technical guidance for low impact development (LID) guidelines, then the new development and site improvements proposed by the 2011 FMPs could be achieved without producing a cumulatively considerable increase in pollutants to 303(d) listed waters.

For example, the County of Orange has implemented an Integrated Pest Management (IPM) Policy that is included as Exhibit A-5.V of its Local Implementation Plan (2010). Each County agency/department that performs landscaping management and pest control activities has adopted a version of this policy for their use. The district will likewise implement BMPs that encourage the use of native vegetation, set schedules for irrigation and chemical application, and for the collection and proper disposal of unused pesticides, herbicides and fertilizers. The district will also conduct annual IPM self-audits in accordance with the adopted IPM policy.

Section 15130(a)(3) of the CEQA Guidelines states, in part, that a project’s incremental contribution to a cumulative effect *“is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.”* Given that the 2011 FMPs contain water quality provisions that would guide site-specific BMPs, the FMPs would minimize the adverse effects of campus development, while providing water quality and flood control benefits that might not otherwise be implemented. Since the FMP projects will mitigate runoff volumes and pollutant loads, their incremental and cumulative effects on water quality and flood control facilities would be less than significant.

3.7 HAZARDS AND HAZARDOUS MATERIALS

3.7.1 EXISTING SETTING

3.7.1.1 Regulatory Setting

Federal Regulations

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

CERCLA, also known as Superfund, is a federal law mandating the cleanup of abandoned hazardous waste sites that may endanger public health or the environment. This law outlines the potential liability related to the cleanup of hazardous substances, available defenses to such liability, appropriate inquiry into site status under Superfund, and statutory definitions of hazardous substances and petroleum products. The Proposed Project would be subject to CERCLA for the cleanup of any hazardous substances.

Superfund Amendment and Reauthorization Act Title II (SARA)

SARA of 1986 is the Emergency Planning and Community Right-to-Know Act. Facilities are required to report the following items on Environmental Protection Agency (EPA) Form R, the Toxic Chemical Release Inventory Reporting Form: facility identification; off-site locations to which toxic chemicals are transferred in wastes; chemical-specific information; and supplemental information. Form R requires a facility to list the hazardous substances that are handled on-site and to account for the total aggregate releases of listed toxic chemicals for the calendar year. Releases to the environment are to include emissions to the air, discharges to surface water, and on-site releases to land and underground injection wells. The Proposed Project would be subject to SARA for the use, storage, transport, disposal, or release of toxic chemicals.

Code of Federal Regulations (CFR), Title 49

The U.S. Department of Transportation (DOT) regulates the transport of hazardous materials under Title 49 of the CFR. Title 49 prohibits the release of hazardous materials to the environment and requires all containers to meet strict standards for impact resistance, strength, and packing compatibility. In addition, Title 49 contains specific requirements for the training of drivers in inspection, operation of vehicles, loading and unloading of materials, the properties and hazards of the materials transported, and the use of vehicle controls and equipment, including operation of emergency equipment. The Proposed Project would be subject to DOT requirements related to the use, generation, storage, and disposal of hazardous wastes.

Resource Conservation and Recovery Act (RCRA)

The federal RCRA of 1976 was the first major federal act regulating the potential health and environmental problems associated with the nation's growing volume of municipal and industrial waste. It amended the Solid Waste Disposal Act of 1965 and gave the EPA the authority to control hazardous and nonhazardous solid wastes from the cradle to the grave (i.e., generation, transportation, treatment, storage, and disposal). RCRA and the implementation regulations developed by the EPA provide the general framework for the national hazardous and nonhazardous waste management systems. This framework includes the determination of whether hazardous wastes are being generated, techniques for tracking wastes to eventual disposal, and the design and permitting of hazardous-waste management facilities.

In 1984, RCRA was expanded with the Hazardous and Solid Waste Amendments of 1984. The amendments strengthened the law by covering small-quantity generators of hazardous waste and establishing requirement for hazardous waste incinerators, and the closing of substandard landfills. In 1986, the law was expanded further to regulate underground storage tanks and other leaking waste storage facilities. Hazardous-waste regulations promulgated in 1991 address siting, design, construction, operation, monitoring, corrective action, and closure of disposal facilities.

Additional regulations addressing solid waste issues are contained in Title 40, CFR, Part 258. The proposed FMPs would be subject to the requirements of RCRA related to the generation, storage, or disposal of hazardous and nonhazardous solid wastes.

State Regulations

Hazardous Waste Control Law of 1972

Individual states may implement hazardous waste programs under RCRA with EPA approval; however, California has not yet received this EPA approval. Therefore, the California Hazardous Waste Control Law of 1972 is administered by the California EPA (Cal/EPA) and is the original hazardous-waste control law in California to regulate hazardous wastes. This law initiated programs that track hazardous-waste generators and their hazardous waste streams and handling practices. While the California Hazardous Waste Control Law is more stringent than RCRA, until the EPA approves the California program, both the state and federal laws apply in California. The proposed FMPs would be subject to requirements of this law related to the generation, storage, and disposal of hazardous wastes.

Titles 22, 23, and 27 of the California Code of Regulations

In California, Titles 22 and 23 of the California Code of Regulations (CCR) address hazardous materials and wastes. Title 22 defines, categorizes, and lists hazardous materials and wastes, including universal wastes. Title 23 addresses public health and safety issues related to hazardous materials and wastes, and it specifies disposal options. Title 27 of the CCR addresses landfill closure standards and landfill-related public health and safety issues. The FMPs would be subject to requirements of this law related to the use, generation, storage, and disposal of hazardous wastes.

Hazardous Materials Release Response Plans and Inventory Law of 1986

Health and Safety Code, Section 25500 et seq., governs hazardous materials handling, reporting requirements, and local agency surveillance programs. The FMPs would be subject to requirements of this law related to maintaining hazardous material inventories, business plans, and emergency response plans.

Title 8 of the California Code of Regulations

The California Occupational Safety and Health Administration (Cal/OSHA) has established requirements to limit occupational exposure to lead-based paint (LBP). Construction, alteration, and repair work, including demolition, is subject to Title 8, CCR, Section 1532.1 for lead, which outlines permissible exposure limits, exposure assessment requirements, methods of compliance, and necessary respiratory protection and protective clothing. Demolition work associated with implementation of the FMPs would be subject to this law.

Local/Regional Regulations

Asbestos-Containing Materials (ACMs)

Title 40, CFR, Part 61.145, National Emission Standard for Asbestos, Standard for Demolition and Renovation, and the South Coast Air Quality Management District (SCAQMD), Rule 1403, Asbestos Emissions from Demolition/Renovation Activities, require the following:

- Owners of pre-1979 buildings known to contain ACMs are required to prepare and asbestos management plan.
- The facility must conduct a survey to inspect, identify, and quantify all friable and Class I and Class II non-friable ACMs prior to demolition or restoration;
- Proper notification must be submitted to SCAQMD;
- An on-site representative must be present during removal, disturbance, and handling of ACMs;
- ACMs must be removed in accordance with the required schedule and procedures and following the proper handling operations; and
- ACMs must be disposed of following proper disposal methodology, including maintaining waste shipment records and using appropriate labeling.

Underground Storage Tanks (USTs)

The San Diego Regional Water Quality Control Board (RWQCB) oversees the UST program in southern Orange County, including the Saddleback College campus, and the Santa Ana RWQCB oversees the UST program in northern and central Orange County, including the IVC campus. Regulatory authority for USTs at both campuses is held by the local Certified Unified Program Agency (CUPA), the Orange County Health Care Agency's Environmental Health Division. The CUPA regulates tank monitoring, installation, and removal, and site mitigation.

Contaminated Soil and Groundwater

Under Water Code, Division 7, Section 13304 the San Diego RWQCB (for the Saddleback College campus) and the Santa Ana RWQCB (for the IVC campus) oversee investigation and mitigation of sites contaminated from USTs, wells, or other sources. Oversight by the RWQCBs is not limited to specific pollutants or specific media, but is focused on determining whether an unauthorized release may result in pollution of regional water bodies. In addition, SCAQMD Rule 1166 sets control requirements for volatile organic compound (VOC) emissions from excavating, grading, handling, or treating contaminated soil and SCAQMD Rule 1150 requires implementation of an approved Excavation Management Plan for excavations of landfill material. Requirements include development and approval of a mitigation plan, notification to SCAQMD, monitoring, and handling requirements for the contaminated soil.

3.7.1.2 Environmental Setting

Current Campus Environments

Saddleback College

Saddleback College was dedicated in 1968. The oldest buildings on campus are the James B. Utt Learning Resource Center (completed in 1973), the Science and Math Building (1974), and the Fine Arts Complex (1977). Other structures are much newer, having been completed in the past decade. In total, the campus houses approximately 615,000 square feet of permanent buildings.

Serving the campus are 17 paved parking lots with 4,436 parking spaces, and a bus stop. Most parking lots are located along the internal College Drive loop road. Several instructional and administrative buildings, a football stadium, softball fields, a golf driving range, and a swimming pool are generally located within the College Drive loop road. Warehouses, village classrooms, campus police, transportation yards, tennis courts, baseball fields, practice fields, and other recreational facilities are located outside and east of the loop road.

Surrounding land uses include apartments and commercial retail to the north. Areas to the west are developed as apartments and commercial offices. Areas to the east are currently vacant. Areas to the south are developed as single-family residences.

Irvine Valley College

Irvine Valley College was founded in 1979. The original Irvine Valley College campus was developed as a small grouping of buildings located in the northwest quadrant of the current campus. Now identified as the A Quad and B Quad, these buildings, which were constructed in the early 1980s, were conceived as building “clusters” and organized in orthogonal patterns on the campus. Though the buildings were placed in this orthogonal arrangement, the building architecture varied in character, height, and exterior materials and finishes. Numerous structures, including the Performing Arts Center, the Business Sciences and Technology Innovation Center, CP-100, and M Buildings, were constructed within the past five years. In total, the campus houses about 400,000 square feet of buildings.

Serving the campus are eight paved parking lots with 2,262 parking spaces, and a further 150 spaces available on a gravel lot. A bus stop is also present on the campus. Parking is generally located at the campus periphery, along the Jeffrey Road and Irvine Center Drive frontages, with additional parking provided along the western border. The center of campus is pedestrian-oriented.

Surrounding land uses include vacant open space and a golf course to the north (across Irvine Center Drive). Areas to the west are developed as vacant open space and single-family residential (across Jeffrey Road). Areas to the east are developed as single-family residences and apartments. Areas to the south are developed with a power transmission line corridor and single-family residential and commercial uses (across Barranca Parkway).

Hazards

Aviation Activities

John Wayne Airport, located 14 miles northwest of Saddleback College and 4.5 miles west of IVC, serves commercial, general aviation, commuter, and military aircraft. It is the largest airport in Orange County, serving approximately 9 million passengers annually. The “Airport Environs Land Use Plan for John Wayne Airport” (amended April 2008) maps six “Safety Compatibility Zones” for the airport. The purpose of this map is to depict which land uses are acceptable and which are unacceptable in various portions of airport environs. Neither Saddleback College nor IVC fall within any of the mapped zones. Additionally, neither of the campuses is within the 20,000-foot notification radius for activities at the airport.

There are no private airstrips in the vicinity of either of the campuses.

Wildland Fire

Mapping of Fire Hazard Severity Zones (FHSZs), indicating the potential for the occurrence of wildland fires, is provided by the California Department of Forestry and Fire Protection (CAL FIRE)

through the Fire and Resource Assessment Program (FRAP). The “Draft Fire Hazard Severity Zones in LRA” map, dated September 27, 2007, shows the following:

- The Saddleback College campus is within FHSZs ranging from “Moderate” to “Very High,” with the highest fire risks along the campus’ eastern edge, adjacent to the Arroyo Trabuco open space area.
- The IVC campus is “Unzoned,” indicating a low risk of wildland fires.

Hazardous Materials

Older structures on both the Saddleback College and IVC campuses have the potential to contain ACMs and LBP. In addition, both campuses may contain residues of organochlorine pesticides from termiticide applications and pesticides and fertilizers from past and ongoing agricultural and landscape maintenance activities.

Other hazardous materials present on the campuses include nominal amounts of various solvents, paints, and cleaning agents used for facilities cleaning and maintenance, and small amounts of various chemicals in science laboratories.

Sensitive Receptors

Appendix G to the State CEQA Guidelines suggests that a significant impact could occur if a proposed project emits hazardous emissions or handles hazardous materials, substances, or wastes within one-quarter mile of an existing or proposed school. The following schools are located within one-quarter mile of the Saddleback College or IVC campuses, and are therefore considered sensitive receptors with respect to hazardous materials exposure:

Saddleback College

Capistrano Valley High School
Sunflower Montessori

26301 Via Escolar, Mission Viejo
28251 Marguerite Parkway #L, Mission Viejo

Irvine Valley College

No schools within ¼ mile.

3.7.2 IMPACT SIGNIFICANCE CRITERIA

The State CEQA Guidelines suggest that a project would normally be judged to produce a significant or potentially significant effect on the environment related to hazards and hazardous materials if the project were to:

- *Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.*
- *Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.*
- *Emit hazardous emissions or handle hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.*
- *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 create a significant hazard to the public or the environment.*

- *Result in a safety hazard for people residing or working in the project area, when a project is 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.*
- *Result in a safety hazard for people residing or working in the project area, when a project is located within the vicinity of a private airstrip.*
- *Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.*
- *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.*

3.7.3 IMPACTS FOUND TO BE LESS THAN SIGNIFICANT

Hazardous Waste Sites

- *The Project would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would not, as a result, create a significant hazard to the public or the environment.*

Lists of hazardous materials sites compiled pursuant to Government Code Section 65962.5 have been reviewed. There are no unremediated hazardous materials sites on either the Saddleback College or IVC campuses. There were previously two leaking underground storage tanks present within Saddleback College, but both have been remediated and their respective cases with the Orange County Health Care Agency, Environmental Health Division closed (Case 03UT015, closed August 28, 2003 and Case 94UT066, closed August 27, 1996). Because no unremediated hazardous materials sites remain on either of the campuses, the impacts related to the presence of such sites is less-than-significant.

Aviation Impacts

- *The Project would not create a safety hazard for people residing or working in the Project area as a result of activity from nearby public or public use airports.*
- *The Project would not create a safety hazard for people residing or working in the Project area as a result of activity from private airstrips.*

The IS/NOP established that a less-than-significant impact would occur as a result of aviation activity at public or public use airports. The Orange County Airport Land Use Commission has prepared Airport Environs Land Use Plans (AELUPs) for public and public-use airports within Orange County. Neither Saddleback College nor IVC is located within the boundaries of an AELUP. There is, therefore, a less-than-significant impact related to the exposure of people residing or working in the vicinity of the campuses to aviation safety hazards related to public or public use airports.

The IS/NOP established that no impact would occur as a result of aviation activity at private airstrips because there are no such facilities within the vicinities of the campuses. There is, therefore, no impact related to the exposure of people residing or working in the vicinity of the campuses to aviation safety hazards related to private airstrips.

Interference with Emergency Response or Evacuation Plans

- *The Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.*

The proposed FMPs do not contain any components which would impair or physically interfere with the emergency preparedness or evacuation plans adopted by the Cities of Irvine and Mission Viejo. The FMPs enhance, rather than reduce, access to the campuses through the creation of a loop road to service Saddleback College and the addition of a new entry to IVC from Barranca Parkway. All new structures on the campuses would comply with applicable code requirements which ensure fire department access to buildings. The FMPs would have no impact on local public streets other than improvements to existing campus entries and the addition of a new entry; these changes improve circulation and provide alternative emergency access and would therefore not impede emergency evacuation routes. There is a less-than-significant impact associated with interference with emergency response or evacuation plans.

Wildland Fires

- *The Project would not 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.*

CAL FIRE's mapping of wildland fire hazards indicates that the IVC campus is at low risk from wildland fires. Therefore, there is no impact associated with exposure of people or structures to wildland fires on the IVC campus.

Saddleback College is located in an area with fire hazard designations ranging from "moderate" to "very high." Implementation of the Saddleback College FMP would lead to an increase in development projects in areas at high risk from wildland fires on the campus. Land development within such hazard zones is governed by a number of standard measures that alleviate these potential hazards. The 2010 California Building Code regulate developments and requires certain built-in fire protection devices when maximum allowable uses or heights are exceeded, or the building use presents a life or property protection problem. In addition, the Orange County Fire Authority has guidelines to lessen the impacts of a fire hazards such as brush clearance and inspection programs.

As a State agency, Saddleback College is required by the California Emergency Services Act (Government Code 8607[d]) to use the Standardized Emergency Management System (SEMS) during emergency response. Saddleback College maintains an Emergency Operations Plan (EOP) in compliance with SEMS requirements. The EOP provides a detailed discussion of management, organization, and communications protocols during emergency events, and provides for the activation of an Emergency Operations Center during certain emergency events. In case of a local fire, the Orange County Fire Authority would be primarily responsible for firefighting operations.

Several elements of the Saddleback College FMP would reduce wildland fire hazards on the Saddleback College campus. Among these are:

- The planned Loop Road, which will serve as a buffer between open space lands to the east and the campus core to the west; in addition, the proposed Loop Road will improve fire department access to the eastern half of the campus.
- The removal of the Village classrooms and neighboring buildings and replacement with a surface parking lot, which will widen the buffer the campus core and open space lands.
- Fire safety improvements to existing buildings, including replacement of fire alarm systems and the installation of fire-alarm activated door holders and closers.

Compliance with applicable building standards for all new structures, and the implementation of the land use plan in the Saddleback College FMP would result in the risks associated with wildland fires being less than significant on the Saddleback College campus.

3.7.4 POTENTIAL IMPACTS AND MITIGATION MEASURES

Hazardous Materials Handling and Transport

- *The Project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.*
- *The Project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.*
- *The Project could emit hazardous emissions or handle hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.*

Hazardous chemicals transported and used on the campus include mostly materials used for routine maintenance and cleaning in a college setting, although some hazardous substances may be used in science labs. Saddleback College and IVC are not permitted to dispose of any hazardous substances into the drainage system without full neutralization and treatment. Instead, any hazardous substances used by the science labs must be temporarily stored in storage containers to be disposed of by private hazardous waste disposal companies for transportation offsite in accordance with State and federal requirements.

Older structures (generally, those constructed before 1979) on the Saddleback College and IVC campuses could contain ACMs or LBP. Also potentially present on both campuses are organochlorine pesticides from termiticide applications and pesticides and fertilizers from past and ongoing agricultural activities. Mitigation Measures HAZ-1, HAZ-2, and HAZ-3 are incorporated to reduce the risks associated with these hazardous materials. Mitigation Measure HAZ-1 requires the District to evaluate the presence of LBP and organochlorine pesticides and comply with the DTSC's standard investigation and mitigation methods. Mitigation Measure HAZ-2 requires the District to evaluate the potential presence of toxic substances resulting from the past use of pesticides and fertilizers in agricultural areas and comply with the DTSC's standard investigation and mitigation methods. Mitigation Measure HAZ-3 requires the District to evaluate older structures for the presence of ACMs prior to demolition, and comply with the SCAQMD's regulations for removal of such substances.

Various new structures are proposed as part of the FMPs. While programming for these structures has not yet been finalized, some may include facilities such as science laboratories that handle nominal amounts of hazardous materials. Any such facilities would be required to comply with regulations and programs established by the federal EPA, State Department of Toxic Substances Control (DTSC), and the Division of the State Architect. Such requirements would be established prior to permit issuance and would reduce this impact to a less-than-significant level. Practices are already in place for the safe transport, use, and disposal of these hazardous materials.

Therefore, with implementation of standard practices and Mitigation Measures HAZ-1, HAZ-2, and HAZ-3, a less-than-significant impact to the public or the environment would occur through either the routine transport, use, or disposal of hazardous materials, or as a result of reasonably foreseeable upset and accident conditions, would occur.

Two schools are located within one-quarter mile of Saddleback College: Capistrano Valley High School and Sunflower Montessori. For the reasons noted above, and with implementation of the

proposed mitigation measures, the impacts on these schools of hazardous materials on the campuses would be less-than-significant.

Mitigation Measure HAZ-1: *Prior to structural demolition, whether full or partial, the SOCCCD shall evaluate the potential presence of lead-based paint and organochlorine pesticides. In so doing, the SOCCCD will comply with DTSC recommendations for investigation and mitigation as provided in DTSC's "Interim Guidance, Evaluation of School Sites with Potential Soil Contamination as a Result of Lead From Lead-Based Paint, Organochlorine Pesticides from Termiticides, and Polychlorinated Biphenyls from Electrical Transformers," dated June 9, 2006.*

Mitigation Measure HAZ-2: *Prior to development on, or use of soils from, areas of the campuses historically used for agricultural purposes, the SOCCCD shall evaluate the potential presence of toxic substances resulting from application of pesticides and/or fertilizers. In so doing, the SOCCCD will comply with DTSC recommendations for investigation and mitigation as provided in the "Interim Guidance for Sampling Agricultural Soils (Second Revision)," dated August 2002. This Guidance shall be followed for sampling agricultural properties where development is anticipated.*

Mitigation Measure HAZ-3: *Prior to structural demolition, whether full or partial, of any structure constructed before 1979, the SOCCCD shall evaluate the potential presence of asbestos-containing materials (ACMs). If ACMs are determined to be present, such materials shall be abated in compliance with SCAQMD Rule 1403 and other applicable State and federal rules and regulations.*

3.7.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

As indicated above, mitigation measures can reduce the risks associated with the presence of hazardous materials on the campuses to a less-than-significant level.

3.7.6 CUMULATIVE IMPACTS

Development of the Proposed Project in combination with other projects in the cumulative impact analysis has the potential to increase the use, storage, and/or accidental release of hazardous materials during construction and operation of the respective land uses proposed. Implementation of the recommended mitigation measures would reduce the potential impacts associated with the accidental release of hazardous emissions during construction and operation of the Proposed Project to less-than-significant levels. Other local projects would require evaluation on a project-by-project basis for potential risks associated with hazardous materials use. All projects would be subject to local, State, and federal regulations related to hazardous materials control, including the DTSC and SCAQMD standards described above. Because hazardous materials handling and use is largely site-specific, and all local projects would be required to comply with similar regulations to the Proposed Project, cumulative impacts would be less than significant.

3.8 BIOLOGICAL RESOURCES

3.8.1 EXISTING SETTING

3.8.1.1 Saddleback College Campus

Campus Overview

The 2011 FMP describes the Campus as follows:

Vegetation on campus is a combination of native and non-native planting. The understory is a combination of turf lawn near some building areas with extensive areas of indigenous shrubs that meander through many topographic undulations, both man-made and natural. A horticultural garden and greenhouse is located near the Advanced Technology Building. The athletic fields, including baseball, softball, practice fields, golf range and stadium are natural turf, and highly water reliant. The campus supports a variety of shrub and tree species.

Proposed Loop Road Study Area

Environmental & Regulatory Specialists, Inc. (EARSi) prepared a General Biological Resource Assessment (BRA) in February 2010 to evaluate sensitive biological resources in and adjacent to the easternmost 22.3 acres of the Saddleback College campus. The BRA was prepared to evaluate and assist in the design of the proposed Loop Road project. In July 2010, EARSi prepared a Draft Jurisdictional Delineation for the same Loop Road study area. Both biological investigations determined the occurrence potential for special-status species and sensitive or jurisdictional habitats within or adjacent to that area of the campus. The methodologies included literature and database searches, review of aerial photography, and physical site assessments. The field surveys for both studies were conducted on June 7, 2010. Both reports should be consulted for detailed survey information and results. Following is a summary of the pertinent findings as they form the basis for project impacts and mitigation under CEQA.

The BRA mapped the following land surfaces and plant communities in the 22.3-acre study area:

Paved/Structure	15.19 ac.
Disturbed/Ruderal	4.62 ac.
Ornamental	2.16 ac.
Riparian (Drainage Swale)	0.25 ac.

The BRA made determinations regarding sensitive resources that could potentially occur in the Loop Road study area based on one or both of the following: (1) a record reported in the CNDDDB and; (2) whether the study area is within the known distribution of a species and contains appropriate habitat. Based on those criteria, the BRA determined that no sensitive plant communities or sensitive plant species are located in the study area.

Riparian Community

As described in Section 3.6 (*Hydrology and Water Quality*), stormwater runoff along the eastern boundary is carried in a concrete swale that extends about 1,700 feet from the southeast corner of parking Lot 5A to the southeast corner of the campus, where it is then channeled into a 36-inch corrugated metal pipe (CMP), and finally discharges into Trabuco Creek (County flood control facility L02) on Rancho Mission Viejo property. The drainage swale is generally confined to a concrete V-ditch, but many riparian species have begun to colonize the ditch. Species found include broad-

leaved cattail (*Typha latifolia*), mulefat (*Baccharis salicifolia*), curly dock (*Rumex crispus*), dallis grass (*Paspalum dilatatum*), tall umbrella sedge (*Cyperus eragrostis*), and willow weed (*Polygonum lapathifolium*). Along the upper edges of the ditch, species present include California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), tocalote (*Centaurea melitensis*), black mustard (*Brassica nigra*), fennel (*Foeniculum vulgare*), glaucous barley (*Hordeum murinum* ssp. *glaucum*), and soft chess (*Bromus hordeaceus*).

Given its plant species composition, the drainage swale was found to contain marginally suitable habitat for the coastal California gnatcatcher (*Polioptila californica californica*), which is federally-listed as Threatened and is a California Species of Special Concern.

The drainage swale was also found to contain 0.23 acre of federal and 0.25 acre of State jurisdictional non-wetland waters, with CDFG acreage being broader than and encompassing the federal jurisdictional waters (see section 3.8.4.2, *Riparian Habitat and Jurisdictional Waters*, for jurisdictional waters impacts and mitigation requirements).

Sensitive Wildlife Species

Although not within designated critical habitat for the California gnatcatcher (CAGN), the proposed Loop Road study area is adjacent to a large coastal sage scrub (CSS) community in the Arroyo Trabuco located immediately to the east. That CSS community represents suitable habitat and the U.S. Fish and Wildlife Service (USFWS) has designated the off-campus area as critical habitat for the coastal California gnatcatcher. During the biological field survey, vocalizations of the species were heard within that area, just over 300 feet east of, and over 100 feet downslope from, the campus boundary. Focused biological surveys for CAGN were not performed during the BRA field investigation, but will be required in order to document presence/absence of the species if construction must occur during the breeding season (see section 3.8.4.1 for potential CAGN effects and survey requirements).

Common Plant Species

As part of the biological survey conducted for the proposed Loop Road area of the campus, the General BRA identified Disturbed/Ruderal and Ornamental plant communities and constituent species, which are also found elsewhere on campus. The numerous species found in the 4.62 acres of disturbed area and 2.16 acres of ornamental planting may be found throughout similar areas of the campus.

The Disturbed/Ruderal community includes a portion of the practice field covered in bluegrass (*Poa* sp.); a dirt field largely devoid of vegetation to the south of the practice field; and an area that has been previously graded and is now dominated by ruderal species. Dominant species in the ruderal area include tocalote and black mustard. Sub-dominant species include rattail fescue (*Vulpia myuros*), glaucous barley, soft chess, garland chrysanthemum (*Chrysanthemum coronarium*), red brome (*Bromus madritensis* ssp. *rubens*), caterpillar phacelia (*Phacelia cicutaria*), tree tobacco (*Nicotiana glauca*), wild radish (*Raphanus sativa*), horseweed (*Conyza canadensis*), curly dock, Russian thistle (*Salsola tragus*) California poppy (*Eschscholzia californica*). Colonizing individuals of California buckwheat and California sagebrush can also be found in this community as they move into the proposed Loop Road area from the coastal sage scrub community adjacent to the eastern campus boundary.

Species in the Ornamental community have been planted throughout the Saddleback College campus. Planted and invasive, non-native species dominate this community and include oleander (*Nerium oleander*), pride of Madeira (*Echium candicans*), rosemary (*Rosmarinus officinalis*), Brazilian pepper (*Schinus terebinthifolius*), Peruvian pepper (*Schinus molle*), pampas grass (*Cortaderia*

jubata), jacaranda (*Jacaranda mimosifolia*), Japanese honeysuckle (*Lonicera japonica*), black mustard, tocalote, artichoke thistle (*Cynara cardunculus*), white sweet clover (*Melilotus alba*), castor bean (*Ricinus communis*), and pine (*Pinus* sp.). Some planted and colonizing native species are also located in the drainage swale along the campus eastern boundary and include mulefat, toyon (*Heteromeles arbutifolia*) and California sagebrush.

Common Wildlife Species

General wildlife species documented on the campus include western fence lizard (*Sceloporus occidentalis*), killdeer (*Charadrius vociferus*), red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), mourning dove (*Zenaida macroura*), Anna's hummingbird (*Calypte anna*), western kingbird (*Tyrannus verticalis*), cliff swallow (*Petrochelidon pyrrhonota*), black phoebe (*Sayornis nigricans*), American crow (*Corvus brachyrhynchos*), western scrub-jay (*Aphelocoma californica*), northern mockingbird (*Mimus polyglottos*), bushtit (*Psaltiriparus minimus*), California towhee (*Pipilo crissalis*), lesser goldfinch (*Carduelis psaltria*), song sparrow (*Melospiza melodia*), house finch (*Carpodacus mexicanus*), desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Spermophilus beecheyi*), and coyote (*Canis latrans*).

3.8.1.2 Irvine Valley College Campus

The 2011 FMP describes the Campus as follows:

Remnants of the Eucalyptus tree hedgerows along Irvine Center Drive acknowledge the agricultural history of the region. Orange trees, planted in a small grove, mark the corner of Jeffery Road and Irvine Center Drive. A Southern California Edison right-of-way easement along Barranca Parkway and Jeffery Road is maintained open and not vegetated. Also along Barranca Parkway is City of Irvine easement maintained as a natural area for water run-off control. Vegetation on campus is generally non-native evergreen and flowering species introduced with development of buildings and parking. The understory is generally turf lawn with shrubs at the building's foundations. Two distinct courtyards in the A-Quad and B-Quad are currently maintained with perimeter planting around an open paved space. The BEES Garden located adjacent to the tennis courts is utilized for instructional and research functions. A small orange grove is maintained adjacent to the athletic fields. The athletic fields are natural turf with numerous areas succumbed to damage from use or animal infestation. The campus supports a variety of tree species. A formal line of deciduous trees extends southwest from the center of campus.

The IVC campus is outside any federal or State designated critical habitat for threatened or endangered species.

3.8.1.3 Wildlife Habitat Potential

The area of the proposed Loop Road alignment along the eastern boundary of the Saddleback College campus is likely used by wildlife for foraging, breeding, and local movement in the general area and to the surrounding open space areas. However, it is not used to the same extent as the adjacent Trabuco Creek, which is a regional movement corridor with connectivity to other large open space areas to the north, south and west of the campus.

The City of Irvine natural area along Barranca Parkway is also used by wildlife. However, it is separated from the IVC campus by the 200-foot wide SCE right-of-way and will not be directly or indirectly affected by activities proposed in the 2011 FMP. The Barranca Parkway Access Road will join the IVC loop road to Barranca Parkway through the City-owned and SCE areas. That project was approved by the district and the City following design and environmental review processes that

preceded, and are separate from, the 2011 FMP process. The project is in final engineering review by City of Irvine and scheduled to begin construction in 2012. As such, it is not the subject of further discussion in this program EIR.

The open and landscaped areas of both campuses include vegetation communities with the potential to support nesting migratory birds. These vegetation communities are not unique to the college campuses and can be found in most of the surrounding neighborhoods and open spaces as well. Nesting habitat for non-listed migratory and native avian species is protected under the Migratory Bird Treaty Act (MBTA) and Fish and Game Code Sections 3503, 3503.5 and 3513.

3.8.1.4 Orange County Habitat Conservation Planning

The purpose of the Orange County Natural Community Conservation Plan and Habitat Conservation Plan (NCCP/HCP) process is to protect habitat and species in Orange County's large-scale ecosystem landscapes, while allowing for planned economic development outside of the protected reserve areas.

Central-Coastal Subregion NCCP/HCP

The Central-Coastal NCCP/HCP was established in 1996, and the Nature Reserve of Orange County (NROC) is both the non-profit corporation and the name of the 37,000-acre reserve. The non-profit manages the NCCP/HCP for both subregions by: coordinating land management activities of public and private landowners within the NROC; conducting wildlife and habitat research and monitoring; and restoring disturbed habitats. The implementing agreement of the NCCP/HCP signed by all participants is in effect until the year 2071, after which all reserve lands will be permanently protected.

Although in the Coastal NCCP subregion, the IVC campus is not within or adjacent to any of the identified reserve types in the subregion, nor is it near any identified wildlife crossing. The most sensitive habitat in the campus vicinity is the city-owned natural area along Barranca Parkway. As indicated above, the Barranca Parkway Access Road to the IVC campus will cross that natural area under a long-standing agreement with the City of Irvine. The access road project is approved and in the final phases of construction design. All resource permits and approvals have been obtained or are in process separate from any action taken on the 2011 FMP. Therefore, no further evaluation of the Barranca Parkway Access Road is necessary.

Southern Subregion NCCP/HCP Process

Interstate 5 in south Orange County generally delineates the Coastal NCCP subregion from the Southern Subregion, which covers approximately 132,000 acres of developed, agricultural, and undeveloped natural lands and comprises about 26 percent of the County of Orange. The Southern Subregion includes all or portions of five cities including Mission Viejo, which is where the Saddleback College campus is located.

In 1991, the Rancho Mission Viejo (RMV) entered into a process with the USFWS, CDFG, and the County of Orange to plan for the Southern Subregion, a major part of which included studying and inventorying RMV land containing native habitat of threatened and endangered species. The scientific study was known as the Southern Subregion NCCP/HCP process. In 1999, the scope of study was expanded to include the Special Area Management Plan/Master Streambed Alteration Agreement (SAMP/MSAA), which was an ACOE program to preserve and enhance wetlands, manage water runoff and protect the water quality in the San Juan Creek and San Mateo Creek watersheds. In 2004, prior to completion of the NCCP/SAMP processes, the County approved The Ranch Plan, which is an open space preservation/management and land use plan for the remaining 23,000

acres of Rancho Mission Viejo. In 2006, the County of Orange approved the Southern Subregion NCCP, with open space on the RMV as its centerpiece. Finally, in 2007, the USFWS added the RMV's open space to its 32,818-acre Orange County Southern Subregion Habitat Conservation Plan (HCP).¹

The Saddleback College campus is at the western fringes of the Southern Subregion and the SAMP planning boundaries. It is not within The Ranch Plan boundary. However, the campus is adjacent to the Arroyo Trabuco, which is part of the San Juan Creek watershed and which supports USFWS-designated Critical Habitat for the coastal California gnatcatcher. As a developed college campus, Saddleback College is not subject to specific provisions of the HCP unless development goes beyond the campus boundaries into privately or publicly-owned open space, most particularly the Arroyo Trabuco open space and known CAGN habitat.

3.8.2 IMPACT SIGNIFICANCE CRITERIA

Appendix G of the State CEQA Guidelines provides thresholds of significance for determining whether a project could have a significant effect on the environment. According to Appendix G, a project could have a potentially significant impact on biological resources if the project would:

- *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.*
- *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.*
- *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.*
- *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.*
- *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*
- *Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.*

3.8.3 IMPACTS FOUND TO BE LESS THAN SIGNIFICANT

3.8.3.1 Wildlife Movement

- *The Project would not 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.*

The district has provided educational services at the Saddleback College and Irvine Valley College campuses since 1968 and 1979, respectively. Since their establishment, both campuses have expanded and evolved to their existing condition today. Both campuses include a variety of native and non-native trees, shrubs and groundcover species, all of which may support birds and small mammals. The FMP sustainability guidelines for landscaping promote the use of plant species that

¹ <http://www.ranchomissionviejo.com/ranchplan/process.php>

are native to the area. Consequently, the campuses might attract greater numbers of small wildlife that rely on native vegetation for foraging and/or nesting opportunities.

The Saddleback College campus is adjacent to the Arroyo Trabuco (Trabuco Creek), which is a wildlife corridor and riparian habitat for migratory bird species. However, implementation of the FMP will not impact the Trabuco Creek Channel, its banks, or associated riparian vegetation. Therefore, any potential impacts are less than significant and will not require mitigation.

The continued development of the campuses as identified in the 2011 FMPs will not interfere with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, nor will the FMPs impede the use of native wildlife nursery sites.

3.8.3.2 Federally Protected Wetlands

- *The Proposed Project would not have an 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.*

The Saddleback College and IVC campuses are not known to support wetlands. Therefore, 2011 FMP projects would not have an effect on those resources.

The discussion in section 3.8.4.2 (*Riparian Habitat and Jurisdictional Waters*) below indicates that the proposed Loop Road project at the Saddleback College campus would impact only non-wetland waters of the United States and waters of the State.

3.8.3.3 Biological Resource Plans and Policies

- *The Project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*
- *The Project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.*

Implementation of the 2011 FMPs would not conflict with any local policies or ordinances protecting biological resources or conflict with any adopted or approved local, regional, or state habitat conservation plans. The cities of Mission Viejo and Irvine do not have ordinances applicable to the college campuses, which are primarily developed and support mature landscaping.

Although not subject to the Southern Regional HCP (for Saddleback College) or the Central/Coastal Orange County NCCP/HCP (for Irvine Valley College) provisions, the principles of those regional habitat and species preservation plans are maintained through implementation of the 2011 FMPs. For instance, the sustainable landscaping aspects of the 2011 FMPs promote the use of native and/or non-invasive plant species for landscaping, which is important to ecological health and species integrity in native habitats such as the Arroyo Trabuco adjacent to Saddleback College and the City of Irvine natural area south of Irvine Valley College.

Aside from aesthetic considerations, the 2011 FMPs include criteria for selecting plants that are rated by current plant industry standards as having low water consumption; that are low-maintenance, adaptive, and tolerant of drought and temperature extremes; and that have a low occurrence of known pests or disease issues, which reduces or eliminates the need for pesticide and fertilizer use. In addition to those criteria for plant selection, the Saddleback College FMP will specifically prohibit plants identified by the California Exotic Pest Plant Council as an invasive risk in

southern California from areas adjoining the Southern Regional HCP Habitat Reserve. One of the ornamental grasses evaluated for the proposed Loop Road project is *Calamagrostis xacutiflora* 'Karl Foerster,' which is sterile, thus eliminating any chance of this cultivar becoming an invasive plant or creating unwanted seedlings in the landscape. This is particularly important in the design of landscaping along the boundary between the Loop Road and the Arroyo Trabuco so that potentially invasive species are not introduced into the native riparian and upland habitats. For that reason, slopes to off-site areas will be hydroseeded with a natural seed mix to blend with the existing native vegetation. These areas also will not be irrigated or groomed.

Another issue identified as potentially adverse to sensitive wildlife habitat adjacent to the Saddleback College campus is the introduction of additional lighting sources. However, as discussed in Section 3.12 (Aesthetics), the proposed Loop Road project will shield and direct lighting away from habitat areas through the use of low-intensity lighting and shielding methods.

With continued implementation of similar landscaping, lighting, and other development guidelines in all FMP projects, the Proposed Project will not conflict with local or regional species or habitat preservation policies or plans.

3.8.4 POTENTIAL IMPACTS AND MITIGATION MEASURES

3.8.4.1 Direct and Indirect Effects on Wildlife

- *The Project could have an 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.*

Nesting and Migratory Birds

Both campuses have substantial landscape and are adjacent to areas with native vegetation communities with the potential to support nesting migratory birds. Active nests of nesting migratory and native avian species, including raptors, are protected under the MBTA and Fish and Game Code Sections 3503, 3503.5, and 3513. Construction activities associated with any of the 2011 FMP development projects that result in the removal of vegetation could have both direct and indirect impacts to actively nesting birds, including the nests of special-status species. Implementation of FMP projects during nesting and breeding periods could result in both direct and indirect impacts. Direct impacts would include the destruction of active nests, eggs, or young located within vegetation removed as a result of construction activities. Indirect impacts would include noise and disturbance associated with the construction activities that cause birds in adjacent habitats to abandon their nests. Any impacts (direct or indirect) that result in the abandonment or destruction of an active nest or the destruction of eggs or young of any protected avian species, including special-status species, would be considered a significant impact under CEQA.

Removal of vegetation between September 1 and January 31 would likely ensure that there would not be any constraints associated with the MBTA. If this is not possible, it is recommended that a qualified biologist conduct a nesting bird survey(s) prior to the proposed vegetation removal in order to prevent any violations of the MBTA.

Mitigation Measure BIO-1: *Prior to land-clearing activities from February 1 through August 31, a qualified biologist shall first evaluate the type and extent of vegetation removal. As determined necessary, the biological shall conduct a nesting survey to identify any direct or indirect impacts to actively nesting birds. If direct or indirect impacts are identified, the biologist shall specify the appropriate mitigation measure(s) for these impacts. Such*

measures may include avoidance of occupied nests, working outside an established buffer area, modified scheduling of grading and clearing, and monitoring of active nests during construction.

Saddleback College Loop Road

On-Campus Impacts to Coastal California Gnatcatcher

No rare or endangered species were observed within the Loop Road study area. Several plant species associated with the coastal sage scrub plant community were observed in the existing drainage swale along the eastern campus boundary. However, the USFWS reviewed the General BRA and determined that the proposed Loop Road study area, including the drainage swale, did not appear to support suitable habitat for the CAGN. Therefore, USFWS does not expect the bird to be present in the proposed Loop Road study area. Lacking suitable habitat, CAGN would not be present anywhere else on campus.

Off-Campus Indirect Impacts to Coastal California Gnatcatcher

The proposed Loop Road and related improvements could result in indirect impacts to the CAGN habitat located off-site. Off-campus impacts potentially resulting from on-campus work include construction activity noise (temporary) and roadway lighting (permanent), both of which could interfere with breeding and foraging activities if left unaddressed. However, the USFWS recommends the following 'Avoidance and Minimization Measures' to address these potential impacts:

1. Avoid all construction activity during the CAGN breeding season, which is approximately February 15 to August 30;
2. Use and install lighting fixtures with orientation such that light is shielded and directed away from the suitable CAGN habitat to the east. This is already part of the proposed Loop Road lighting design.

With these measures, the USFWS is confident that the Loop Road project is "Not Likely to Adversely Affect" the species, and an "Informal Consultation" under Section 7 of the Endangered Species Act (ESA) will be conducted. This process is usually concluded between the Corps and the USFWS within 45 days.

If construction must occur during the breeding season, protocol CAGN surveys (six surveys, approximately two weeks apart) must be conducted in the adjacent habitat to establish presence/absence of CAGN within a certain distance of the campus boundary to better understand and address potential indirect impacts.

Whether construction occurs during or outside the CAGN breeding season, all proposed Loop Road activities will continue to be coordinated with the appropriate resource agencies in consultation processes that have been ongoing for well over a year. The proposed Loop Road project will proceed on a different plan review and construction-permitting path than most FMP projects due to the interagency consultation and design review processes that were initiated prior to completion of the draft 2011 FMPs. Therefore, even if the district delays approval of the proposed Loop Road design and construction due to modification of campus projects or priorities, the 2011 FMP process will continue unaffected.

Off-Campus Direct Impacts to Coastal California Gnatcatcher

The proposed Loop Road is being designed to minimize any off-site work (e.g., significant road widening or slope encroachment) in an effort to avoid impacting vegetation in the adjacent CAGN

habitat to the east. However, to achieve necessary road width, the proposed Loop Road project might involve slope encroachment into the habitat area, resulting in direct impacts to the CAGN.

Habitat encroachment would require a special and distinct regulatory permitting process with regard to jurisdictional impacts and Endangered Species Act (ESA) compliance. Impacts to off-site natural vegetation within the Trabuco Creek corridor and the surrounding open lands would be considered destruction of suitable CAGN habitat. Protocol surveys would be a prerequisite in an effort to establish the presence/absence of the bird. Depending on survey results, as well as the nature and extent of the potential impacts off-site, the USFWS process under the ESA could become “Formal” with its own set of required permit conditions, including mitigation that is specific to CAGN and its habitat.

As indicated above, the final Loop Road design and interagency consultation process will determine precise survey requirements, habitat impacts, and mitigation measures mandated by resource agency permits.

As indicated previously in Section 3.6 (*Hydrology and Water Quality*), the corrugated metal pipe (CMP) section of the existing, off-campus 36-inch stormdrain near the southeast corner of the campus has been damaged by slope erosion, so the district plans to repair the drainage facility and the slope. Preliminary engineering design indicates that the CMP would be removed entirely and replaced with reinforced concrete pipe (RCP) supported by anchors down the slope. Currently there is no Trabuco Creek outfall on this line; however, a new outfall will be included in the repair plans. Plans for that off-campus drainage and erosion remediation project are in the design phase. Implementation of that project will involve encroachment into the CAGN habitat area (presumed occupied), resulting in direct impacts to the CAGN. However, the project is not part of the FMP, nor within the scope of this program EIR, and will require further agency review, including resource agency permitting and CEQA analysis.

3.8.4.2 Riparian Habitat and Jurisdictional Waters

- *The Proposed Project could have an adverse effect on 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.*

General Effects

The State of California requires (Fish and Game Code Sections 1601 to 1606) that a Notification of Lake or Streambed Alteration be submitted to CDFG for “any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake.” The CDFG reviews proposed actions and, if necessary, submits to the applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by the CDFG and the applicant is the Lake or Streambed Alteration Agreement. Plans that require a Lake or Streambed Alteration Agreement may also require a permit from the USACE under Section 404 of the Clean Water Act.

As it pertains to the Saddleback College campus, any project that may impact Trabuco Creek or waters draining to it may be subject to this process. At the IVC campus, this could involve waters draining to the City of Irvine natural area along Barranca Parkway since it is a riparian remnant of the former San Diego Creek channel.

Other than the Saddleback College Loop Road project discussed below, the 2011 FMPs do not propose near-term projects with the potential to affect riparian habitat or jurisdictional waters. Given

the lack of project specificity and the rapidly changing regulatory environment, the general issue of jurisdictional waters will not be evaluated further in this program EIR.

Saddleback College Loop Road

On-Campus Impacts to Jurisdictional Waters

The existing drainage swale along the eastern campus boundary is characterized as moderately to highly disturbed due to surrounding campus development and ongoing campus activity. Several reaches of the bed and bank are lined with pavement. Despite being a constructed flood conveyance feature, the swale has become colonized by a mix of ruderal and native upland and riparian vegetation due to lack of maintenance. The man-made drainage swale now exhibits functions and values similar to those of natural drainage features.

Water quality in the swale is expected to be low, as the swale is fed by nuisance and irrigation flows generated by the college campus. Runoff in the swale flows to the existing 36-inch CMP stormdrain at the southeast corner of the campus. These flows daylight in or adjacent to the Trabuco Creek riparian corridor below, thereby establishing a surface connection to the San Juan Creek watershed, and eventually to the Pacific Ocean. Based on the surface hydrologic connection, the drainage swale is considered jurisdictional waters of the U.S. and of the State, and is regulated by the ACOE, CDFG and RWQCB. In total, the 22.3-acre Loop Road project site contains 0.23 acre of federal and 0.25 acres of State jurisdictional non-wetland waters, with CDFG acreage being broader than and encompassing the federal jurisdictional waters.

There are three primary agencies that regulate activities within inland streams, wetlands and riparian areas in California. The U.S. Army Corps of Engineers Regulatory Program regulates activities pursuant to Section 404 of the Federal Clean Water Act (CWA). The CDFG regulates activities within streambeds, lakes, and wetlands pursuant to Division 2, Chapter 6, Section 1600 of the Fish and Game Code. The RWQCB regulates activities pursuant to Section 401 of the Federal CWA and the California Porter-Cologne Water Quality Control Act of 1969 (California Water Code).

Any impacts to the Loop Road drainage swale or any of its hydrologic connections to Trabuco Creek through filling, stockpiling, conversion to a storm drain, channelization, bank stabilization, road or utility line crossings, or other modification would require permits from the CDFG, the RWQCB, and the Corps before any work could commence on the site. Both permanent and temporary impacts are regulated and would trigger the need for these permits. The final confirmation of the limits of State and federal jurisdiction on the property is subject to verification by the respective regulatory agencies.

In order of descending preference, the resource agencies generally require one or more of the following alternatives for jurisdictional impacts:

1. Avoidance
2. On-site mitigation if avoidance is not feasible.
3. Off-site mitigation, but only if avoidance and on-site mitigation measures are not feasible.
4. Payment of mitigation fees to an approved mitigation bank, or 'In Lieu Fee' program, if the other alternatives are not feasible.

According to the Phase I Report, the Corps often prefers payment of fees into an approved mitigation bank or 'In Lieu Fee' if avoidance cannot be achieved, while CDFG prefers on-site mitigation if avoidance cannot be achieved, with payment of fees into a mitigation bank as a last alternative.

Assuming that the drainage swale is removed, and thus fully impacted by the proposed Loop Road project, there will be no opportunity for avoidance or on-site mitigation. The Loop Road location near a steep slope precludes the creation of a vegetated watercourse because infiltrating runoff could interact adversely with expansive soils or otherwise impact the structural integrity of the roadway and related improvements. Also assuming that off-site mitigation is not feasible, the estimated mitigation costs will be approximately \$150,000. This estimate is based on a 0.75-acre area and assumes a 1.5:1 mitigation ratio, which is based on finding no endangered species in the Loop Road project area and not mitigating on-site. The actual final required mitigation will be determined by the Resource Agencies once an application has been submitted.

Off-Campus Impacts to Jurisdictional Waters

The 2011 FMP, including the Loop Road project, will not result in direct impacts to Trabuco Creek and the associated jurisdictional waters.

As indicated previously, the district is planning a stormdrain replacement and slope stabilization project that is adjacent to the southeast corner of the campus, but off-campus (on Rancho Mission Viejo property). Plans for that off-campus drainage and erosion remediation project are in the engineering design phase. Implementation of that project will result in direct impacts to Trabuco Creek, including impacts to jurisdictional waters requiring a Clean Water Act (CWA) section 404 permit, Fish and Game Code section 1602 Agreement, CWA section 401 water quality certification, and CEQA analysis. The project is not part of the FMP, nor within the scope of this program EIR, and will require the aforementioned regulatory review and permits prior to approval and construction.

3.8.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the 2011 FMPs according to their provisions for avoiding or minimizing effects on sensitive biological resources will maintain the effects of implementation below a level of significance.

3.8.6 CUMULATIVE IMPACTS

Implementation of the 2011 FMPs on existing college campuses will not contribute incrementally to the loss of habitat or result in significant impacts on sensitive biological resources. No significant cumulative impact will occur to sensitive biological resources.

3.9 CULTURAL AND PALEONTOLOGICAL RESOURCES

Brunzell Cultural Resource Consulting (BCR) prepared a Phase I Cultural Resources Assessment for the IVC and Saddleback College campuses in June 2011. The purpose was to identify and document any cultural and paleontological resources that might be located on the campuses and to evaluate such resources pursuant to CEQA. The Cultural Resource Assessment includes a cultural resources records search, literature review, intensive field survey, Native American Consultation, and vertebrate paleontological resources assessment. The full report, with records search results, detailed findings and recommendations, is included as Appendix F of this EIR.

3.9.1 EXISTING SETTING

3.9.1.1 Environmental Setting

Prehistoric Ethnography

Both Irvine Valley College and Saddleback College are situated within the traditional boundaries of the Gabrielino (Tongva) Indians. The Gabrielino were originally studied using ethnography, particularly during the early 20th century, although their decimation through acculturation and disease has necessitated supplementing any social analysis with archaeological data. The Gabrielino name has been attributed by association with the Spanish mission of San Gabriel, and refers to a subset of people sharing speech and customs with other Cupan speakers (such as the Juaneño/Acjachemen) from the greater Takic branch of the Uto-Aztecan language family. The Gabrielino were semi-nomadic hunter-gatherers who subsisted by exploitation of seasonably available plant and animal resources. Plants utilized for food were heavily relied upon and included acorn-producing oaks, as well as seed-producing grasses and sage. Animal protein was commonly derived from rabbits and deer in inland regions, while coastal populations supplemented their diets with fish, shellfish, and marine mammals. Dog, coyote, bear, tree squirrel, pigeon, dove, mud hen, eagle, buzzard, raven, lizards, frogs, and turtles were specifically not utilized as a food source.

History

In Southern California, the historic era is generally divided into three periods: the Spanish or Mission Period (1769 to 1821), the Mexican or Rancho Period (1821 to 1848), and the American Period (1848 to present).

Spanish Period

The Spanish period (1769-1821) is represented by exploration of the region; establishment of the San Diego Presidio and missions at San Gabriel and San Luis Rey; and the introduction of livestock, agricultural goods, and European architecture and construction techniques.

Spanish influence continued to some extent after 1821 due to the continued implementation of the mission system.

Mexican Period

The Mexican period (1821-1848) began with Mexican independence from Spain and continued until the end of the Mexican-American War. The Secularization Act resulted in the transfer, through land grants (called ranchos) of large mission tracts to politically prominent individuals. At that time, cattle ranching was a more substantial business than agricultural activities, and trade in hides and tallow increased during the early portion of this period. Until the Gold Rush of 1849, livestock and horticulture dominated California's economy.

American Period

The American Period, 1848–Present, began with the Treaty of Guadalupe Hidalgo. In 1850, California was accepted into the Union of the United States primarily due to the population increase created by the Gold Rush of 1849. The cattle industry reached its greatest prosperity during the first years of the American Period. Mexican Period land grants had created large pastoral estates in California, and demand for beef during the Gold Rush led to a cattle boom that lasted from 1849–1855. However, beginning about 1855, the demand for beef began to decline due to imports of sheep from New Mexico and cattle from the Mississippi and Missouri Valleys. When the beef market collapsed, many California ranchers lost their ranchos through foreclosure. A series of disastrous floods in 1861–1862, followed by two years of extreme drought, which continued to some extent until 1876, altered ranching forever in the southern California area.

3.9.2 IMPACT SIGNIFICANCE CRITERIA

CEQA Guidelines Section 15064.5 establishes rules for the analysis of cultural (historical, archaeological, and paleontological) resources in order to determine whether a project may have a substantial adverse effect on the significance of these resources. Appendix G of the State CEQA Guidelines provides thresholds of significance for determining whether a project could have a significant effect on the environment. According to Appendix G, a project could have a potentially significant impact on cultural resources if the project would:

- *Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5 of the State CEQA Guidelines.*
- *Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5 of the State CEQA Guidelines.*
- *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.*
- *Disturb any human remains, including those interred outside of formal cemeteries.*

According to Section 15064.5, *"substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired."*

Pursuant to Public Resources Code Section 21083.2(g), a "unique 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.

3.9.3 IMPACTS FOUND TO BE LESS THAN SIGNIFICANT

3.9.3.1 Historical and Archaeological Resources

- *The Project would not cause a substantial adverse change in the significance of a historical resource.*
- *The Project would not cause a substantial adverse change in the significance of an archaeological resource.*

BCR conducted a literature review, records search, and fieldwork during preparation of the Cultural Resources Assessment.

Literature Review and Records Search

The records search was conducted at the South Central Coastal Information Center (SCCIC) located at California State University, Fullerton. The search included a review of all recorded historic and prehistoric cultural resources, as well as a review of known cultural resources, and survey and excavation reports generated from projects located within one mile of each of the campuses. Also reviewed were the National Register of Historic Places (National Register), the California Register of Historical Places, and documents and inventories from the California Office of Historic Preservation including the lists of California Historical Landmarks, California Points of Historical Interest, Listing of National Register Properties, and the Inventory of Historic Structures.

Saddleback College

The SCCIC records search indicated that 69 cultural resource studies have been conducted in the area. The studies indicate 11 recorded cultural resources (eight prehistoric, two historic, and one with prehistoric and historic components) within a one-mile radius of the Saddleback College campus. The nearest previously recorded cultural resource was a concentration of historic debris remaining from a ca. 1930s Japanese settlement accompanied by a sparse prehistoric artifact scatter. None of the studies has assessed Saddleback College and no cultural resources have been recorded within its boundaries.

Irvine Valley College

The SCCIC records search indicated that 80 cultural resource studies have been conducted in the area. The studies indicate 16 recorded cultural resources (10 historic and 6 prehistoric) within a one-mile radius of the IVC campus. The nearest previously recorded cultural resource was a single isolated prehistoric mano (a stone used to manually grind seeds), located approximately 100 meters southwest of IVC's southwestern boundary. Two of the studies assessed portions of the IVC property, but recorded no cultural resources within its boundaries.

NAHC Records Search and Consultation

The Cultural Assessment included a request to the California Native American Heritage Commission (NAHC) for a Sacred Lands File search and Native American contacts list. The NAHC Sacred Lands Inventory did not indicate the presence of Native American cultural resources at or within ½ mile of the IVC or Saddleback College campuses. The NAHC provided a list of affected Native American tribal contacts, which was used to inquire whether any tribe or individual has knowledge of cultural resources in the campus vicinities that might be of religious and/or cultural significance to the tribal communities. No responses from the tribal contacts were received.

No Native American resources, including human remains or burial artifacts, were identified or otherwise indicated as having a potential for occurrence.

Field Surveys

BCR conducted archaeological field surveys of the IVC and Saddleback campuses in April 2011. The surveys were conducted by walking parallel transects spaced approximately 15 meters apart across 100 percent of the subject properties, where accessible. Soil exposures, including natural clearings, agricultural fields, and back dirt from rodent burrows were carefully inspected for evidence of cultural resources. Buildings and structural installations were also scrutinized for any evidence of historic-age components. The field surveys did not identify any cultural or historic resources on either campus property. Ground disturbances were severe in most locations, and included plowed agricultural fields and disturbances related to campus grading, landscaping, paving, and building installations.

Conclusion

Based on the records searches and field survey results, implementation of the 2011 FMP building and infrastructure improvements at the IVC and Saddleback College campuses is not anticipated to affect any archaeological or historical resources. Therefore, BCR recommends that no additional cultural resources work or construction monitoring is necessary for developments associated with the 2011 FMPs.

- *The Project would not disturb any human remains, including those interred outside of formal cemeteries.*

Consultation with appropriate Native American tribes was conducted during preparation of the Cultural Resources Assessment. No Native American remains or burial artifacts have been identified on or within ½ mile of the Saddleback College or IVC campuses. Further, no parties contacted during the Native American consultation identified the potential for undiscovered burial sites at the campuses.

If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD will complete the inspection within 48 hours of notification by the NAHC. These requirements of California law preclude the need for project-specific mitigation measures.

3.9.4 POTENTIAL IMPACTS AND MITIGATION MEASURES

3.9.4.1 Paleontological Resources

- *The Project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.*

The Cultural Assessment included a request to the Natural History Museum of Los Angeles County for a vertebrate paleontological records search. The search consisted of a thorough review of geological and paleontological maps and reports to reveal any known vertebrate fossil localities or sensitivity within or neighboring the campus areas. The Museum indicated that there are no vertebrate fossil localities that lie directly within the IVC or Saddleback College boundaries, but that there are fossil vertebrate locations nearby from the same sedimentary deposits that occur in the campus study areas. Attachment C of the Cultural Resources Assessment contains the detailed findings and recommendation of the Museum's paleontological resources assessment.

IVC and Saddleback College are both located on the southern extent of the physiographic area known as the Los Angeles Basin. It is characterized as a transverse-oriented lowland basin and coastal plain approximately 50 miles long and 20 miles wide. The basin originated as a deep marine trough during the Pliocene epoch (2 to 7 million years ago) that eventually filled with shallow water fossil bearing sediments. By the beginning of the Pleistocene epoch (less than 2 million years ago), uplifting created the series of plains and mesas along the coast that now characterize the area.

Saddleback College

Surficial deposits in the southeast portion of Saddleback College consist of non-marine Quaternary terrace deposits. The closest vertebrate fossil locality from Older Quaternary deposits is more than two miles west at LACM 4543, which is an area on the west side of Sulphur Creek Reservoir that produced a fossil specimen of bison.

The higher elevations in the western portion of the campus consist of the marine Pliocene Niguel Formation, which produced a fossil specimen of white shark at LACM 3804, to the north-northwest of the campus. At lower elevations in the western portion of the campus, there are exposures of the marine late Miocene siltstone facies of the Capistrano Formation that also underlies the Niguel Formation. The Capistrano Formation has yielded a great number of vertebrate fossil localities in this area of Orange County. The closest such locality is directly west of the campus at LACM 5002, which proposed a fossil specimen of baleen whale. Other nearby localities have produced numerous fossil marine vertebrates such as sharks, bony fishes, birds, walruses, dolphins and whales.

Although there are no known vertebrate fossil localities on the Saddleback College property, based on the history of vertebrate fossil discoveries in similar sedimentary units, the paleontological sensitivity of units underlying the campus is high, meaning that they have high resource yield potential, particularly at depth. The entire campus has been disturbed on the surface, and many developed areas have substantial fill at depth. However, without available documentation of the depth and lateral extent of fills, this analysis assumes the potential to encounter undisturbed sedimentary units at depth, particularly in areas where historic fills and/or surface disturbances might not extend deeper than five feet (i.e., in areas of agricultural use, recreational fields, parking lots, etc.).

Based on the geotechnical reports prepared for projects at both campuses over the past 10 years (see Section 3.10, *Geology and Soils*), over-excavation and recompaction of soils will likely be a requirement of any future building or site improvements. Removal and recompaction has ranged from one foot to six feet or more, though actual removal depths may also be locally increased based on the observation of the soil conditions encountered during grading. The higher range of over-excavation depths has been at the Saddleback College campus. As such, grading and excavation activities during construction have the potential to encounter a paleontological resource, the destruction of which would result in a significant project impact. Therefore, mitigation measures require that substantial excavations at the campus first be evaluated by a paleontologist to determine the potential sensitivity of geological deposits. If warranted, the ground disturbance activities must be monitored in order to quickly and professionally recover any fossil remains discovered, while not impeding development. Any fossils collected would be placed in an accredited scientific institution, thereby reducing impacts to a level that is less than significant.

Irvine Valley College

The entire IVC campus has surficial deposits composed of younger Quaternary Alluvium, primarily derived as fan deposits from the hills to the east. These deposits usually do not contain significant vertebrate fossils, at least in the uppermost layers, but they may be underlain by older Quaternary

deposits. The records search indicates that the closest vertebrate fossil locality from older Quaternary deposits is about 1.5 miles south-southeast of the campus, where a site produced a fossil specimen of ground sloth, *Mylodontidae*.

Shallow excavations in the younger Quaternary Alluvium are unlikely to uncover any significant vertebrate fossils. However, deeper excavations (i.e., greater than five feet) in those areas that extend down into older Quaternary deposits may well encounter significant vertebrate fossil material. Similar to the Saddleback College campus, the entire IVC campus has been disturbed on the surface, and many developed areas have substantial fill at depth. However, without available documentation of the depth and lateral extent of fills, this analysis assumes the potential to encounter undisturbed sedimentary units at depth, particularly in areas where historic fills and/or surface disturbances might not extend deeper than five feet (i.e., in areas of agricultural use, recreational fields, parking lots, etc.). Based on those assumptions, grading and excavation activities during construction have the potential to encounter a paleontological resource, the destruction of which would result in a significant project impact.

Any substantial excavations at the Saddleback College and IVC campuses will be subject to the mitigation measures described below.

Mitigation Measure PR-1: *Prior to any excavation or grading, the district shall compare the limits of proposed excavations with the depth and lateral extent of existing sub-surface disturbances, including foundations, utility and fill materials. The district shall determine the extent of sub-surface disturbances by using information including, but not limited to, as-built construction plans, underground utility surveys, and/or historic or recent geotechnical information, including boring and trenching logs.*

Mitigation Measure PR-2: *Should resources be uncovered as a result of campus grading and/or excavation shallower than five feet, a qualified paleontologist shall be retained and notified, and work in the area of the find shall cease until a paleontological monitor under the supervision of the qualified paleontologist arrives. The paleontological monitor shall have the authority to halt or divert any activities adversely impacting potentially significant paleontological resources, and those resources must be recovered, analyzed, and curated with the Natural History Museum of Los Angeles County.*

Mitigation Measure PR-3: *Based on information obtained from compliance with Mitigation Measure PR-1, and should excavations exceed five feet in depth, a qualified paleontologist shall be retained to conduct additional paleontological assessment using pre-construction geotechnical surveys to better define the subsurface geological features of the campuses. Data from the geotechnical surveys will help define the vertical and horizontal distribution of paleontologically sensitive subsurface units to assist in the accurate development of any monitoring requirements. Should that data indicate paleontological sensitivity, the following shall occur:*

- *A qualified paleontologist shall be retained to attend a pre-construction meeting with construction personnel. The paleontologist shall inform construction personnel that fossils may be encountered, and provide information on the appearance of fossils, the role of paleontological monitors, and on proper notification procedures; and*
- *A paleontological monitor under the supervision of a qualified paleontologist shall monitor all earth-moving activities with potential to disturb previously undisturbed paleontologically sensitive sediment. The paleontological monitor shall have the authority to halt or divert any activities adversely impacting potentially significant*

paleontological resources, and those resources must be recovered, analyzed, and curated with the Natural History Museum of Los Angeles County.

3.9.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The required mitigation measures will reduce potential impacts to cultural and paleontological resources to a level that is less than significant.

3.9.6 CUMULATIVE IMPACTS

Impacts to cultural and paleontological resources are site-specific. With application of the mitigation measures described above, Project-level impacts to these resources would be less-than-significant. All local projects would be required to comply with the same local, State, and federal regulations as the Proposed Project. For these reasons, the Proposed Project would not contribute to cumulatively significant impacts related to cultural and paleontological resources.

3.10 GEOLOGY AND SOILS

Information in this section is drawn from 13 geotechnical investigations that have been prepared since 2002 for various building and site improvements projects at both campuses, as follows:

Saddleback College Campus

- 2002. Health Science Building and District Offices
- 2005. Health Science Building and District Offices (geotechnical engineering services during construction)
- 2005. Technology and Applied Science (TAS) Building - North Wing (investigation of slab distress)
- 2006. Library Building (investigation of slab distress)
- 2007. McKinney Theatre Restroom Building
- 2009. Pool Deck Replacement
- 2010. East Bridge Replacement Project Northeast of Library Building

Irvine Valley College

- 2005. Business Technology and Innovation Center Building
- 2005. Maintenance and Operation Facility and Storage Buildings
- 2006. Music Building
- 2007. Addition to Physical Science Building (B-200)
- 2009. New Life Sciences Building
- 2010. Irvine Valley College Access Road, Barranca Parkway North and Shadow Oaks

Each of the projects listed has been constructed, is in construction, or is in final engineering design.

3.10.1 EXISTING SETTING

3.10.1.1 Geologic Units

Regionally, the Saddleback College and IVC campuses are both within the northern portion of the Peninsular Ranges Geomorphic Province of southern California, which consists of a series of northwest-trending mountain ranges and valleys and similarly oriented faults.

Saddleback College

Locally, the Saddleback College campus is situated within the extreme southeast portion of the Los Angeles Basin on the flank of the rolling hills at the confluence between the Santa Ana Mountains to the east and the San Joaquin Hills to the west. Based on a review of the available geologic maps, the campus and immediate vicinity are underlain by shallow, marine-derived sedimentary bedrock of the Pliocene Age Niguel Formation. At the campus, geotechnical borings have revealed the Niguel Formation as brown to gray, moist, hard, interbedded sandstone, siltstone and claystone. Other borings have shown the Niguel Formation as generally composed of a white to yellowish-gray, fine to coarse-grained, friable, moderately indurated sandstone with interbeds of yellowish-gray siltstone.

Irvine Valley College

The IVC campus is located within the Tustin Plain, which is a relatively flat, alluvial plain located between the Santa Ana Mountains to the north and the San Joaquin Hills to the south. Several hundred feet of alluvial deposits underlie the site. These relatively recent alluvial sediments were generally deposited by local streams as active channel deposits and during times of flooding across the floodplains. Alluvial deposits were found in all of the exploratory borings to the depths explored. These deposits generally consist of various mixtures of sand, silt, clay, and gravel.

3.10.1.2 Soil Characteristics

Each of the geotechnical reports includes lab results from boring samples collected and tested to determine the soil properties for use in the subsequent engineering analyses. Laboratory tests included in-situ moisture-density, consolidation, expansion potential, compaction characteristics, and corrosion potential.

General Soil Properties

Saddleback College

The campus has undergone substantial excavation and grading to achieve existing grade elevations. Campus soils prior to development generally consisted of natural colluvium overlying sedimentary bedrock of the Niguel Formation. During recent investigations, the listed geotechnical reports have generally encountered artificial fill soils over colluvium deposits and bedrock, or fill over bedrock. Fill soils are reported to range from 2 to 14 feet, depending on the campus location and prior excavation requirements.

The Library and the north wing of the TAS building have both been the subject of investigation and remedial action for slab distress. The Library was constructed in 1971, with distress first reported in 1984. The TAS building was completed in 1991, with distress to the building reported in 1992. The investigations for both buildings generally concluded that the distress was the result of adverse expansive soil activity at the campus, as further discussed below. The reports also noted that soil chemical testing found levels of sulfate ranging from negligible to severe. At severe levels, sulfates can adversely affect the integrity of concrete structural elements, but standard engineering design and building code compliance will reduce potentially adverse effects to a level that is less than significant.

Irvine Valley College

The geotechnical reports indicate that the majority of the IVC campus is underlain primarily by alluvial soil with minor amounts of artificial fill, while the undeveloped area along Barranca Parkway is underlain by a mixture of young alluvial and fan deposits. Fill soils encountered were generally in the range of several feet thick.

The soils in the IVC campus agricultural area have been exposed to weathering and disturbance that have generally rendered the upper several feet compressible and unsuitable to support fill. These conditions required removal of the compressible soils and replacement as engineered fill for the Barranca Parkway Access Road improvements (Zeiser Kling, 2010).

Erosion Potential

The geotechnical investigations prepared for projects on the Saddleback College and IVC campuses do not note erodible soils as a problematic or otherwise limiting factor on either campus. Erosion and siltation is currently controlled where soils are exposed as a result of grading or other construction-

related surface disturbance. No undercutting or other structural compromise is attributed to erosion on either campus.

Off-campus slope erosion near the southeast corner of Saddleback College will be remediated in conjunction with stormdrain improvements that are currently in the engineering design phase, as discussed in Section 3.6 (*Hydrology and Water Quality*).

Expansive Soils

Expansive soils pose a hazard to building foundations when clays in residual soils (natural or artificial) swell and exert uplift pressures that can damage structures. Expansive soils owe their characteristics to the presence of swelling clay minerals. As they get wet, the clay minerals absorb water molecules and expand, potentially causing lifting of a building or other structure during periods of high moisture. Conversely, as they dry they shrink, leaving large voids in the soil and potential building settlement. Under either condition, damage can be extensive. Swelling clays can control the behavior of virtually any type of soil if the percentage of clay is more than about 5 percent by weight.

As discussed below, expansive soils were determined to be the source of slab distress in the Saddleback College Library and TAS (north wing) buildings. On both campuses, expansive soil influence was considered to pose the greatest potential risk to some projects and, as such, was given careful consideration by the project architects and structural engineers (AGI, 2005a/b and 2007a; CEML, 2009).

Saddleback Campus

Based on tests performed on representative near-surface soils at the Saddleback Campus, Expansion Indices ranging from 73 to 125 or higher were found, indicating an expansion potential ranging from "medium" to "highly expansive" depending on the campus location.

A 2005 geotechnical investigation (AGI, 2005c) indicated that the slab-on-grade of the Technology and Applied Science (TAS) Building had been adversely impacted by the expansive soil activity of the underlying fill/bedrock. Construction of the TAS Building was completed in 1991 and distress to the building was reported as early as 1992. According to AGI (2005c), the slab distress occurred despite over-excavation to provide for at least three feet of non-expansive compacted fill below the footing area, and despite mixing imported and onsite soils to produce low expansion fill soils (Expansion Index = 21 to 31). By comparison, the UBC mandates that "special [foundation] design consideration" be employed if the Expansion Index is 20 or greater (UBC Table 18-1-B Expansion Index). Accordingly, the geotechnical reports require an Expansion Index of 20 or less (UBC Standard 29-2) for imported fill and select backfill.

Ultimately, AGI (2005c) found that the significant deformation of the slab-on-grade system was due to long-term expansive soil/bedrock activity, exacerbated by the poor original design and construction of the slab-on-grade. The thickness and reinforcement of the slab configuration were found to inadequate resistance to deformation due to the highly expansive soil/bedrock conditions, thus requiring full removal and replacement of the entire slab-on-grade system of the TAS north-wing structure.

IVC Campus

Based on tests performed on representative near-surface soils at IVC, Expansion Indices ranging from 73 (at Barranca Access Road) to 134 (at the Business Technology and Innovation Center) were found, indicating an expansion potential ranging from "medium" to "highly expansive" depending on

the campus location. Five of the six IVC geotechnical reports identified highly expansive soils, including:

1. M&O Facility and Storage Buildings (2005)
2. Business Technology and Innovation Center Building (2005)
3. Music Building (2006)
4. Addition to Physical Science Building (B-200) (2007)
5. New Life Sciences Building (2009)

Similar to the Saddleback College campus, the expansive nature of the IVC campus soil is common to the area and requires a somewhat heavier foundation system than would be required for less critical sites.

3.10.1.3 Seismic Hazards

Known Earthquake Faults

A risk common to all areas of Southern California is the potential for damage resulting from seismic events (earthquakes). The Saddleback College and IVC campuses are located within a seismically active area, as is all of Southern California. Although geotechnical reports for projects on both campuses have not identified active or potentially active faults on or within the immediate vicinity of the campuses, earthquakes generated on large regional faults could affect the campuses. The potential for surface rupture resulting from the movement of nearby major faults is not known with certainty but is considered low.

The Peninsular Ranges Province is a seismically active region characterized by structural blocks separated by a series of northwest-trending strike-slip faults. These faults are a part of or related to the San Andreas Fault System. The most prominent of these faults within the site area are the Whittier, Elsinore and Newport-Inglewood Fault Zones, all of which are known to be active during Quaternary time.

Saddleback College

The closest known active fault to the campus is the northwest-trending Newport-Inglewood Fault Zone, located approximately 8 miles southwest of the campus. The closest historically recorded moderate to large earthquake was a moment magnitude 4.5 earthquake on October 27, 1969 that had an epicenter about 8 miles from the campus and generated peak horizontal ground accelerations (PHGA) up to 0.067g at the campus. On the offshore segment of the Newport-Inglewood Fault Zone, the 1933 Long Beach earthquake had an epicenter located approximately 18 miles southwest of the campus, and a moment magnitude of approximately 6.3, and generated an estimated PHGA of up to 0.097g at the campus.

Motion along the Newport-Inglewood Fault Zone is generally considered to be right-lateral, strike-slip with some component of vertical slip. This fault zone has an estimated slip rate of 0.8 to 2.1 millimeters per year and is thought to be capable of producing an earthquakes between a moment magnitude of 6.0 and 7.2 (AGI, 2010).

Irvine Valley College

The active fault closest to the IVC campus is also the northwest-trending Newport-Inglewood fault zone, located approximately 10 miles southwest of the campus. The largest recorded historical earthquake to affect the campus was the 1933 Long Beach Earthquake, which had an epicenter located approximately 12 miles southwest of the campus on the offshore segment of the Newport-

Inglewood Fault Zone. This earthquake had a moment magnitude of approximately 6.3 and generated an estimated peak ground acceleration of about 0.157g at the campus.

The closest earthquake fault rupture zone is located approximately 0.2 miles west of the campus within the San Joaquin Hills Fault zone. The most likely faults to have a significant impact to the site are the San Joaquin Hills Fault, capable of generating an estimated PHGA of 1.081g, and the San Joaquin Hills Blind Thrust, capable of generating an estimated PHGA of 0.605g (Zeiser Kling, 2010)

Groundshaking Potential

No active faults are known to exist and the risk of surface fault rupture is considered to be low at the Saddleback College or IVC campuses. However, the Project area is within a region of historical seismicity and will likely be subject to seismic shaking in the future. Earthquakes generated on large regional faults could affect both campuses.

Liquefaction Potential

The term “liquefaction” describes a phenomenon in which saturated soil loses strength and becomes “liquefied” during strong groundshaking events. The factors known to influence liquefaction potential include soil type and depth, grain size, relative density, groundwater level, degree of saturation, and both the intensity and duration of ground shaking. Generally, liquefaction occurs in predominantly poorly consolidated granular soil and under shallow groundwater conditions.

Saddleback Campus

According to the California Department of Conservation (DOC) Seismic Hazard Zone Map for the San Juan Capistrano Quadrangle (DOC 2001b), the campus is not mapped within a zone of potential liquefaction, though Trabuco Creek, which is located east of and adjacent to the campus, is subject to liquefaction risk. The Saddleback College campus is at least 130 feet above any near-surface groundwater associated with Trabuco Creek to the immediate east. Further, based on seven geotechnical reports prepared for campus projects between 2002 and 2010, groundwater has not been found in any borings or test excavations. Due to the presence of relatively well-consolidated sedimentary bedrock at shallow depths underlying the site and the absence of shallow groundwater conditions, the potential for liquefaction at the campus is considered to be very low.

IVC Campus

According to the Seismic Hazard Zone Map for the Tustin Quadrangle (DOC 2001a), the IVC campus is at the eastern fringe of a large liquefaction hazard area that encompasses west Irvine and extends into the cities of Tustin, Santa Ana and Costa Mesa. Within that expansive regional hazard zone, only a small area of the IVC campus along Jeffrey Road is potentially subject to liquefaction. The mapped area on campus is limited to the southwest corner of existing parking Lot 5 and about the western quarter of the existing agricultural field.

The regional hazard designation warranted further investigation of liquefaction potential during development of the IVC campus. The six geotechnical reports prepared for IVC campus projects since 2005 have documented groundwater depths ranging from 20 feet below ground surface (bgs) to 30 feet bgs. Generally, liquefaction occurs in predominantly poorly consolidated granular soil where the groundwater depth is less than 50 feet. Even though the groundwater at the campus is relatively shallow, the soils encountered during geotechnical investigations were relatively fine-grained and cohesive soil, which is not susceptible to liquefaction.

The geotechnical report for the Barranca Parkway Access Road (Zeiser Kling, 2010) found groundwater at 26 feet bgs and determined that the area is susceptible to liquefaction. Factors of safety against liquefaction within the liquefiable zones ranged up to 1.3. Given the depth to groundwater and the limited thickness of liquefiable soil, the geotechnical engineer found the potential for surface expression of liquefaction (i.e., sand boils, etc.) to be low at that location. Design of the access road project has proceeded on that basis and no further evaluation is necessary in this program EIR.

Landslides

Saddleback College

The Seismic Hazard Zone Map for the San Juan Capistrano Quadrangle (DOC 2001b) indicates that several areas of the campus are subject to potential landslide. However, those mapped slide hazards are entirely within areas of the campus that were stabilized in the past during landscape slope creation or in conjunction with road and parking improvements. A landslide hazard area is mapped offsite along the bluffs overlooking Trabuco Creek to the east.

Irvine Valley College

Very low gradients exist onsite and no slopes are present anywhere across the IVC campus. The potential for seismically-induced landsliding to occur is very low. Additionally, due to the lack of slopes onsite, the potential for lateral spreading is also considered very low.

3.10.2 IMPACT SIGNIFICANCE CRITERIA

Based on the criteria presented in the CEQA Guidelines, Appendix G (Environmental Checklist), significant geology and soils impacts would result if the Proposed Project would:

- *Expose people or structures to potential substantial adverse effects, including the risk or loss, injury, or death involving:*
 - o *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;*
 - o *Strong seismic groundshaking;*
 - o *Seismic-related ground failure, including liquefaction; or*
 - o *Landslides.*
- *Result in substantial soil erosion or the loss of topsoil.*
- *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.*
- *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.*
- *Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.*

3.10.3 IMPACTS FOUND TO BE LESS THAN SIGNIFICANT

3.10.3.1 Seismic Hazards

Fault Rupture

- *The Proposed Project would not expose people or structures to potential substantial adverse effects, including the risk or loss, injury, or death involving 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.*

None of the three campuses are located within any Alquist-Priolo Earthquake Fault Zoning Map study area. There is no potential to conflict with any provisions of the Fault Zoning Map or requirements of the State Geologist. As confirmed by at least 13 existing geotechnical evaluations conducted on the Saddleback and IVC campuses, there is no substantial evidence of any known faults capable of surface rupture on either of the campus properties. Based on a review of the existing geologic information, no major surface fault crosses through or extends toward the campuses. The potential for surface rupture resulting from the movement of nearby major faults is not known with certainty, but is considered low (CEML, 2009). Further discussion in the program EIR is not necessary.

Liquefaction

- *The Proposed Project would not expose people or structures to potential substantial adverse effects, including the risk or loss, injury, or death involving seismic-related ground failure, including liquefaction.*

Saddleback College

Section 3.10.1.3 (*Seismic Hazards*) indicates that the campus is not mapped within a State-mapped zone of potential liquefaction and further, is at least 130 feet above any near-surface groundwater associated with Trabuco Creek to the immediate east. The seven geotechnical reports prepared for campus projects between 2002 and 2010 found no groundwater in any borings or test excavations. Due to the presence of relatively well-consolidated sedimentary bedrock at shallow depths underlying the site and the absence of shallow groundwater conditions, the potential for liquefaction at the campus is considered to be very low and impacts will be less than significant.

IVC Campus

Section 3.10.1.3 (*Seismic Hazards*) indicates that six (6) geotechnical reports prepared for IVC campus projects since 2005 have documented groundwater depths ranging from 20 feet below ground surface (bgs) to 30 feet bgs. Generally, liquefaction occurs in predominantly poorly consolidated granular soil where the groundwater depth is less than 50 feet. Even though the groundwater at the campus is relatively shallow, the soils encountered during geotechnical investigations were relatively fine-grained and cohesive soil, which is not susceptible to liquefaction. With continued geotechnical evaluation of building and site improvement projects listed in the 2011 FMP, liquefaction impacts will be less than significant.

Landslides

- *The Proposed Project would not expose people or structures to potential substantial adverse effects, including the risk or loss, injury, or death involving landslides.*

Seismically-induced landslides and other slope failures are common occurrences during or soon after earthquakes. However, section 3.10.1.3 (*Seismic Hazards*) indicated that both campuses are predominantly developed and pose little or no landslide risk.

Saddleback College

The seven geotechnical reports prepared for campus projects between 2002 and 2010 have found that minor slopes and shallow bedrock conditions in remaining developable areas create a very low potential for seismically-induced landsliding to occur. Site improvements can be made without hazard of landslide, slippage, or damaging settlement, and improvements can occur without similar adverse impact on adjoining properties. Adherence to good construction practice, agency and code requirements, the recommendations in each project geotechnical report, and possible addendum recommendations made after project plan review and at the time of construction will ensure that landslide risk remains less than significant throughout FMP implementation.

Irvine Valley College

Very low gradients exist on the IVC campus and no slopes are present anywhere across the campus. The potential for seismically-induced landsliding to occur is very low. Additionally, due to the lack of slopes, the potential for lateral spreading is also considered very low. Impacts would be less than significant throughout FMP implementation.

3.10.3.2 Soils and Stability

- *The Proposed Project would not result in substantial soil erosion or the loss of topsoil.*

Given that the Irvine Valley College campus is flat, further development is not expected to result in substantial soil erosion or the loss of topsoil. The Saddleback College campus is in a hilly area; however, the campus has been graded in the past and no significant changes in landforms will result with planned construction. Future grading activity resulting from the proposed 2011 FMPs will require preparation of grading plans that include erosion control measures as part of their water quality program. The erosion control plans will explain how soil erosion and potential topsoil loss will be further controlled. Please refer to Section 4.6 (*Hydrology and Water Quality*) for a description of the erosion control measures with which the colleges must comply. Implementation of mandatory erosion control plans will ensure that impacts are less than significant.

- *The Proposed Project would not 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.*

Where applicable to the Saddleback College or IVC campuses, the issues of unstable soils (i.e., highly expansive soils), liquefaction potential, landslide and other geologic risk have been discussed elsewhere in this section. Since each building or site development project under the 2011 FMPs will consider the range of geotechnical limitations in formal engineering studies, no significant impacts are anticipated. Each of the geotechnical reports cited in this section have relied on subsurface exploration, analyses, and professional experience, and judgment for their conclusions that development on the campuses is geotechnically feasible. This includes the overall findings that improvements were feasible without hazard of landslide, slippage, or damaging settlement, and improvements can occur without similar adverse impacts on adjoining properties. The findings are predicated on adherence to good construction practice, agency and code requirements, the recommendations in the geotechnical reports, and possible addendum recommendations made after plan reviews and at the time of construction (AGI, 2005a).

The geotechnical report for the Barranca Parkway Access Road noted that the upper three feet of existing agricultural soil was considered soft and compressible, and not suitable to support the proposed road improvements. Similar compressible soils conditions could be encountered during development of the remaining agricultural areas on campus. Insofar as this condition is recognized

and properly addressed through site-specific geotechnical engineering recommendations (e.g., removal and recompaction), the impact would not exceed a level of significance.

- *The Proposed Project would not have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.*

The Saddleback and IVC campuses are served by existing domestic sewer systems. Sewer lines will be extended and connected with existing sewer mains to service the needs of each campus. Alternative wastewater disposal systems, including septic tanks, are neither required nor proposed on the campuses. Therefore, there is no need to examine soils to determine whether they can support the use of septic tanks or other disposal systems. No impacts would occur and further discussion in the program EIR is not necessary.

3.10.4 POTENTIAL IMPACTS AND MITIGATION MEASURES

3.10.4.1 Seismic Groundshaking

- *The Proposed Project could expose people or structures to potential substantial adverse effects, including the risk or loss, injury, or death involving strong seismic groundshaking.*

The campuses, like the rest of Southern California, are located within a seismically active region as a result of being located between the North American and Pacific tectonic plates. The principal source of seismic activity will come from regional faults such as the San Joaquin Hills, Newport-Inglewood, San Andreas, San Jacinto, Los Alamitos, and Elsinore Fault Zones.

The geotechnical reports acknowledge that the purpose of seismic design using their recommended parameters is “to safeguard against major structural failures and loss of life, but not to prevent damage altogether. Even if the structural engineer provides designs in accordance with the applicable codes for seismic design, the possibility of damage cannot be ruled out if moderate to strong shaking occurs as a result of a large earthquake. This is the case for essentially all structures in Southern California.” (CEML, 2009)

The Saddleback College and IVC campuses are subject to strong seismic activity and groundshaking. All future development projects will be reviewed by the Division of the State Architect (DSA) and will be required to comply with standards and requirements contained in the California Building Code relating to construction and paving, structural foundations, etc. Additionally, community college campuses must comply with the Field Act, which establishes higher seismic safety standards for public schools. Compliance with these standards and requirements significantly reduces, but does not eliminate, the likelihood of construction being adversely impacted by future seismic activity. Specific structural elements may be specified during engineering design for future projects; however, no programmatic-level mitigation is available to further reduce the possibility of seismic effects.

3.10.4.2 Expansive Soils

- *The Proposed Project could 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.*

Highly expansive soils are known to exist on both campuses. Although both campuses are capable of supporting existing structures and improvements, further geotechnical evaluation of this issue will be conducted for each project implemented under the FMPs. Based on relatively recent remedial geotechnical and structural work at the Saddleback College campus, the issue of expansive soils and its effects on foundation design warrant scrutiny to minimize the potential for structural damage. Since each potential building site on both campuses bears specific soils and geologic characteristics,

it is not appropriate to make geotechnical or structural recommendations in this program EIR. Rather, expansive soil influence must be given careful consideration by project architects and structural engineers on an individual project basis.

For highly-expansive soil deposits, new construction will require a heavier foundation system than would be required for non-expansive soil sites. Minimum criteria for the design of foundations, slabs and flatwork are provided in the geotechnical investigations for each project. Those criteria are not to be considered as substitutes for actual designs by the structural engineer, who will consider all applicable codes and authoritative sources where needed. The structural engineer will also consider soil-structure interaction effect in order to develop appropriate, design-specific details. As summarized from the prior geotechnical investigations for both campuses, foundation and slab design considerations may include, but will not be limited to, the following:

- **Foundation Design:** Foundation support for the new building could be derived by utilizing a conventional, shallow foundation system embedded within the newly placed compacted fill or natural soil. Along the perimeter of the building, a continuous foundation (perimeter footing) may be used to provide additional stiffness around the perimeter of the building as well as to reduce the moisture intrusion under the building slab. Design parameters (e.g., minimum depth and width, allowable bearing capacities, etc.) will be calculated by a professional engineer in order to properly construct foundations according to code requirements for post-construction settlement.
- **Slab-On-Grade:** Based on the investigations of slab distress at Saddleback College, the reinforcement configurations must provide proper resistance to stresses applied to the slab by expansive soil. To prevent deformation, slabs may require an edge restraint system, such as grade beams, continuous footings, stiffeners, etc. For design of the slab, the project structural engineer could utilize acceptable design methods by California Building Code (CBC) such as the Wire Reinforcement Institute (WRI) design method. Due to the highly expansive nature of the site soil, drainage will be provided beneath the slabs and the soil subgrade may be presaturated. In addition, a vapor barrier may be used where migration of moisture through the floor slab would be detrimental. Each project will be subject to precise design parameters set by a structural engineer.
- **Concrete Flatwork:** In addition to rebar reinforcement and proper drainage, movement of concrete slabs adjacent to buildings may be addressed by doweling slabs to the perimeter footings and constructing thickened edges. As an option to doweling, an architectural separation might be provided between the main structures and the abutting appurtenant improvements.
- **Site Drainage:** Site drainage will be designed by the project structural engineers; however, the geotechnical reports provide drainage criteria as guidelines. Drainage will be directed away from structures via non-erodible conduits to suitable disposal areas. Drainage directly away from structures will generally be five percent. At least two percent minimum will be implemented over soil areas. Four to five percent minimum will be for drainage away from structures and for planter and groundcover areas. In pipes or paved swales, one percent will be adopted as the minimum unless otherwise recommended by the project civil engineer. All enclosed planters will be provided with a suitably located drain or drains and/or flooding protection in the form of weep holes or similar.
- **Moisture Maintenance:** Moisture conditions will be maintained as close to uniform as possible around structures in the expansive soil areas. The amount of movement from shrink to swell will be reduced by limiting the variation in moisture around individual structures.

Since moisture naturally tends to migrate under slab areas, it is desirable to keep the perimeter of the structures on the "moist side" without allowing ponding to occur. Notably, planting even small trees within about ten feet from the structure is not recommended because trees usually extract water from the soil. Greater separation is appropriate for larger trees. The task of approaching moisture equilibrium can be aided through the use of properly designed, installed, and adjusted automatic irrigation systems (AGI, 2005b). These provisions will be implemented during planning and landscape design for specific building and site improvements projects since those projects will each be subject to geotechnical review and soils-specific recommendations.

With proper engineering design and consideration of the issues described above, impacts related to expansive soils are expected to be less than significant.

3.10.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Projects approved and constructed by the district will comply with all applicable State and local regulations, including the final design parameters and building recommendations that will be included in the geotechnical investigation for each building project. The geotechnical reports will include performance standards, make professional recommendations, address building code requirements, and specify the duties of the geotechnical engineers in order to ensure structural safety. Upon final design of the structures and site improvements, including seismic safety design, the geotechnical reports will provide adequate assurance that seismic impacts and soil limitations will be mitigated through engineering methods known to be feasible and effective.

3.10.6 CUMULATIVE IMPACTS

The 2011 FMPs propose new construction and periodic maintenance on both campuses. Those projects will have no cumulative bearing on soils and geology beyond the campus boundaries. Since both campuses are developed, project impacts to physical resources have already occurred and are not contributing to any known local or regional effects considered cumulatively considerable. Project-level geotechnical investigations will continue to mitigate against regional seismic hazards and campus-specific soils limitations such that the cumulative exposure of people and property to hazards will be minimized. Future construction and building renovations under the 2011 FMPs will also be subject to the latest development codes and will benefit from advances that have been made in the fields of structural and geotechnical engineering since early development of the SOCCCD campuses.

3.11 UTILITIES AND SERVICE SYSTEMS

This section evaluates the impacts of implementation of the 2011 FMPs on water, wastewater, solid waste, and energy systems at the respective campuses.

3.11.1 EXISTING SETTING

3.11.1.1 Regulatory Setting

State Regulations

Urban Water Management Planning Act

The California Urban Water Management Planning Act (California Water Code Division 6, Part 2.6 Sections 10610–10656) requires water suppliers to develop water management plans every 5 years to identify short-term and long-term water resource management measures to meet growing water demands during normal, dry, and multiple-dry years.

Water Conservation Projects Act

California's requirements for water conservation are codified in the Water Conservation Projects Act of 1985 (Water Code Sections 11950–11954), as reflected below:

11952(a). It is the intent of the Legislature in enacting this chapter to encourage local agencies and private enterprise to implement potential water conservation and reclamation projects.

California Water Code Sections 10910 et seq.

Senate Bill (SB) 610 was adopted in 2001 and reflects the growing awareness of the need to incorporate water supply and demand analysis at the earliest possible stage in the land use planning process. SB 610 amended the statutes of the Urban Water Management Planning Act, as well as the California Water Code (CWC) Sections 10910 et seq.

Water supply planning under CWC Section 10910 requires reviewing and identifying adequate available water supplies necessary to meet the demand generated by certain qualifying projects, as well as the cumulative demand for the general region over the next 20 years, under a broad range of water conditions. For areas served by public water systems, this information is typically found in the current UWMP. CWC 10910 requires the identification of the public water supplier. Under CWC 10910, a WSA need only be prepared if a project exceeds thresholds of development identified, thereby relieving projects of less significance from the requirements of the bill. SB 610 requires water supply assessments in any environmental documentation for certain projects (as defined in Water Code 10912(a)) subject to CEQA.

Regional Plans

Metropolitan 2010 Regional Urban Water Management Plan

The RUWMP serves as the master plan for water supply and resources management for the Metropolitan's 26 member agencies. This plan provides the basic policy principles that guide Metropolitan's decision-making process to secure a sustainable water supply.

Municipal Water District of Orange County 2010 Urban Water Management Plan

The 2010 Urban Water Management Plan (UWMP) serves as the master plan for water supply and resources management for the MWDOC's member agencies. This plan provides the basic policy principles that guide MWDOC's decision-making process to secure a sustainable water supply.

Moulton Niguel Water District 2010 Urban Water Management Plan

The UWMP meets the current requirements of the California Urban Water Management Planning Act and serves as the master plan for water supply and resources management within the Moulton Niguel Water District (MNWD) service area. The UWMP helps guide policy makers in local governments and at the MNWD, as well as providing important information to local citizens. While serving as a valuable resource for information, this plan provides the basic policy principles that will guide MNWD's decision-making process to secure a sustainable water supply.

Irvine Ranch Water District 2010 Urban Water Management Plan

The UWMP meets the current requirements of the California Urban Water Management Planning Act and serves as the master plan for water supply and resources management within the Irvine Ranch Water District (IRWD) service area. The UWMP helps guide policy makers in local governments and at the IRWD, as well as providing important information to local citizens. While serving as a valuable resource for information, this plan provides the basic policy principles that will guide IRWD's decision-making process to secure a sustainable water supply.

3.11.1.2 Environmental Setting

Potable and Recycled Water

Water Sources and Infrastructure

The Moulton Niguel Water District (MNWD) provides water services to Saddleback College. The Irvine Ranch Water District (IRWD) provides the same services to IVC.

MNWD serves a population of 172,000 over a 36.5-square-mile service area. Groundwater sources are currently unavailable to the MNWD due to underlying geology. Approximately 79 percent of the district's water supplies (including all of its potable supplies) are acquired through the Municipal Water District of Orange County (MWDOC) from the Metropolitan Water District of Southern California (MWD), a regional water wholesaler. MWD obtains its water supplies from Northern California and the Colorado River via the State Water Project (California Aqueduct) and the Colorado River Aqueduct, respectively. Imported water is treated at the Robert B. Diemer Filtration Plant in Yorba Linda and conveyed to MNWD via two MWD-operated transmission mains. The remaining 21 percent of the district's water supplies are obtained through recycling of water at local treatment facilities. A new treatment facility, the Baker Pipeline Water Treatment Plant in Lake Forest, is expected to become operational by the year 2013, providing an additional treatment facility for imported water. The Baker facility will also allow for treatment of water from Irvine Lake for use as a backup supply.

Major classes of water users in the MNWD service area include residential (primarily single-family), commercial, schools, and parks. Large users in the area include The Shops at Mission Viejo commercial center, Soka University, Saddleback College, Mission Viejo High School, and Capistrano Valley High School.

IRWD serves a population of 338,000 over a 181-square-mile service area. Approximately 49 percent of IRWD's water supplies are acquired through the MWDOC from the MWD. Most of this water is supplied through Diemer Filtration Plant. Of remaining supplies, 31 percent are from local

groundwater, 17 percent is recycled water, and 2.5 percent is from surface water sources (Irvine Lake). New sources of potable water supplies in the coming years will include the Baker facility, the Manning Water Treatment Plant, and new groundwater wells.

Major classes of water users in the IRWD service area include residential, commercial, industrial, and agricultural users, and institutions including the University of California, Irvine.

Water Supply Availability

MNWD's 2010 UWMP shows that current (2010) water demand within the utility's service area is 33,846 acre-feet per year (AFY). This demand level is depressed from prior years due to temporary conservation measures imposed due to drought conditions. When these temporary measures are rescinded, demand is expected to return to pre-drought levels of over 41,000 AFY. Demand during 2010 was met with 26,726 AFY of imported water (all from the MWD) and 7,120 AFY of recycled water. As the MNWD service area is built-out, the UWMP projects that demand remain relatively constant at approximately 40,000 AFY through 2035. The breakdown of water sources will, however, change; the amount of water imported from MWD will decrease to 21,000 AFY, the Baker Pipeline Water Treatment Plant will provide 9,400 AFY, and recycled water supplies will increase to 9,100 AFY.

The MNWD has established, through analysis provided in the UWMP, that MNWD is capable of meeting the water demands of its customers in normal, single dry, and multiple dry years between 2015 and 2035.

IRWD's 2010 UWMP shows that current water demand within the utility's service area is 151,751 AFY. Demand for potable water is met with 49,916 AFY of treated imported water (from the MWD) and 43,540 AFY of groundwater. Demand for non-potable water is met with 26,135 AFY of recycled water, 24,262 AFY of untreated imported water, 4,000 AFY of surface waters, and 3,898 AFY of non-potable groundwater. The UWMP projects that, as a result of continued development with the IRWD's service area, demand will increase to 180,674 AFY by 2035. The increased demand will be met by treatment of presently-untreated water imports and increased groundwater production; no increase in treated imports is expected.

The IRWD has established, through analysis provided in the UWMP, that the IRWD is capable of meeting the water demands of its customers in normal, single dry, and multiple dry years between 2015 and 2035.

Existing Water Demand

Estimated existing water demand at the Saddleback College and IVC campuses is provided in Table 3.11-1. It is noted that the water demand rate used in this table is derived from standard demand rates for junior colleges which were established in the 1990s. Since that time, domestic water fixtures and irrigation systems have become significantly more efficient, and landscaping has shifted towards more drought-tolerant, native species which dramatically reduce water use. Further, Saddleback College reduces demand for potable water by using 60 million gallons of reclaimed water per year, primarily for landscape irrigation. IVC also maintains a reclaimed water system for landscape irrigation. Current, actual water use at Saddleback College is approximately 18 million gallons per year, the equivalent of 49,300 gallons per day (gpd), or about 27 percent less than the water demand rate estimated in Table 3.11-1. Nonetheless, to ensure a conservative analysis of water use at the campuses, the standard water demand rate of 96 gpd per 1,000 gross square feet (gsf) is used for estimation of both existing and future water demands.

**TABLE 3.11-1
EXISTING WATER DEMAND**

Campus	Campus Size (GSF)	Water Demand Rate¹	Total Water Demand (gpd)
Saddleback College	699,053	96 gpd/1,000 gsf	67,109
Irvine Valley College	398,999	96 gpd/1,000 gsf	38,304
¹ Demand rates from Santa Monica Community College Career and Educational Facilities Master Plan (2010 Update) EIR.			

Wastewater

Wastewater Infrastructure

MNWD provides wastewater collection and treatment services and utilities to Saddleback College. The IRWD serves IVC.

MNWD collects wastewater via a network of gravity lines, lift stations, and force mains throughout the service area. Wastewater is primarily from residential sources. Wastewater collected by MNWD is sent to South Orange County Wastewater Authority (SOCWA) plants for treatment and disposal. SOCWA is a Joint Powers Authority (JPA) that collects, treats, and disposes of wastewater and sludge in south Orange County. MNWD is a member agency of SOCWA; other SOCWA member agencies include City of Laguna Beach, Trabuco Canyon Water District, Emerald Bay Services District, South Coast Water District, Irvine Ranch Water District, the City of San Clemente, City of San Juan Capistrano and Santa Margarita Water District. SOCWA's four local treatment have a combined design capacity of 37.7 million gallons per day (mgd) and an average daily flow of 23.5 mgd.

SOCWA's plants release water which has been treated to secondary and tertiary treatment standards. Some plants use a conventional activated sludge process that treats wastewater to secondary treatment standards; this effluent is then disposed of through ocean outfalls that discharge off the coasts of Dana Point and Laguna Beach. A portion of the wastewater handled by SOCWA is treated to tertiary standards. This water meets standards for use as recycled water for landscape irrigation. MNWD owns 22.7 mgd of secondary treatment capacity and 15.2 mgd of tertiary treatment capacity in the SOCWA treatment plants.

The majority of wastewater collected within IRWD service area is treated to tertiary standards at the Michelson Water Reclamation Plant, with a smaller amount treated at the Los Alisos Water Reclamation Plant. These facilities produce very high-quality water that has allowed IRWD to obtain an unrestricted use permit, allowing recycled water to be used for virtually everything but drinking. The permitted effluent capacity of the Michelson facility is currently 18 mgd and average flow is approximately 18 mgd. The permitted effluent capacity of the Los Alisos facility is currently 5.5 mgd and average flow is approximately 1.8 mgd. The Michelson facility is currently undergoing an expansion of the capacity from 18 mgd to 28 mgd. The expansion should be completed in 2012 and will produce sufficient recycled water to meet IRWD's non-potable demands at total build-out of the service area.

Existing Wastewater Generation

Estimated wastewater generation at the Saddleback College and IVC campuses is provided in Table 3.11-2. As noted under "Existing Water Demand," above, the water (and hence the wastewater) generation rates below are conservative over-estimations of actual use on the campuses.

**TABLE 3.11-2
EXISTING WASTEWATER GENERATION**

Campus	Campus Size (GSF)	Wastewater Generation Rate ¹	Total Wastewater Generation (gpd)
Saddleback College	699,053	80 gpd/1,000 gsf	55,924
Irvine Valley College	398,999	80 gpd/1,000 gsf	31,920
¹ Generation rates from Santa Monica Community College Career and Educational Facilities Master Plan (2010 Update) EIR.			

Solid Waste

Existing Solid Waste Generation

Estimated solid waste generation at the Saddleback College and IVC campuses is provided in Table 3.11-4.

**TABLE 3.11-3
EXISTING SOLID WASTE GENERATION**

Campus	Campus Size (GSF)	Generation Rate (lbs/sf/day)*	Total (lbs/day)
Saddleback College	699,053	0.007	4,893
Irvine Valley College	398,999	0.007	2,793
<i>Total</i>			7,686 (3.84 tons/day)
* Generation rate is based on the school/institution rate from CalRecycle; http://www.calrecycle.ca.gov/WasteChar/WasteGenRates/Institution.htm			

Solid Waste Disposal Facilities

Solid waste disposal facilities serving Saddleback College and IVC include the Frank R. Bowerman Landfill in Irvine and the Prima Deshecha Landfill in San Juan Capistrano. A third landfill serving Orange County, the Olinda Alpha Landfill, is located in Brea. Operational information on these landfills is provided in Table 3.11-3. All three landfills are owned and operated by OC Waste and Recycling. Waste disposal services are provided to both of the campuses by Ware Disposal, Inc.

**TABLE 3.11-4
LOCAL LANDFILL OPERATING INFORMATION**

Landfill/Location	Size	Permitted Daily Disposal (tons/day)	Remaining Capacity (cubic yards)	Anticipated Closure Date
Frank R. Bowerman (Irvine)	725 acres (534 acres permitted for refuse disposal)	11,500	59,411,872 (as of December 1, 2006)	2053
Prima Deshecha (San Juan Capistrano)	1,530 acres (699 acres permitted for refuse disposal)	4,000	87,384,799 (as of August 1, 2005)	2067
Olinda Alpha (Brea)	565 acres (420 acres permitted for refuse disposal)	8,000	38,578,383 (as of October 1, 2005)	2021
Sources: OC Waste and Recycling; CalRecycle Solid Waste Information System.				

Energy Utilities

Electricity Infrastructure & Sources

Electricity is provided to the Saddleback College campus by San Diego Gas & Electric (SDG&E), and to IVC by Southern California Edison (SCE). A significant portion of the energy needs of both campuses are provided by onsite cogeneration facilities, which generate both electricity and heat for the campuses. SDG&E is a publicly-regulated, investor-owned utility founded 130 years ago. It serves a population of 3.3 million consumers over 4,100 square miles in San Diego County and south Orange County. SCE is a publicly-regulated, investor-owned utility founded over 120 years ago. It serves a population of over 14 million consumers over 50,000 square miles in central, coastal, and Southern California.

The major electricity sources for SDG&E and SCE are shown in Table 3.11-5. As shown in the table, natural gas is presently the main source of energy for both utilities, with nuclear (from the San Onofre Nuclear Generating Station in San Clemente) and renewable sources following in importance.

**TABLE 3.11-5
ELECTRICITY SOURCES**

Energy Resource	Percent of Power Mix		
	SDG&E (2009)	SCE (2009)	California (2008)
Natural Gas	62%	51%	42%
Renewables (excl. Large Hydroelectric)	10%	16%	2%
Coal	7%	10%	33%
Large Hydroelectric	3%	5%	18%
Nuclear	18%	18%	5%
Other	0%	<1%	0%
<i>Data from SDG&E 2009 Power Content Label (October 2010) and SCE 2009 Power Content Label (April 2009).</i>			

Existing electricity demand at the campuses is shown in Table 3.11-6.

**TABLE 3.11-6
EXISTING ELECTRICITY DEMAND**

Campus	Campus Size (GSF)	Energy Consumption Rate (kWh/sf/year) ¹	Total Energy Consumption (kWh/year)
Saddleback College	699,053	11.55	8,074,062
Irvine Valley College	398,999	11.55	4,608,438
¹ Energy consumption rate from Santa Monica Community College Career and Educational Facilities Master Plan (2010 Update) EIR, and are based on the SCAQMD CEQA Air Quality Handbook (1993).			

Natural Gas Infrastructure & Sources

Natural gas services are provided to both campuses by the Southern California Gas Company (SCG). SCG is a publicly-regulated, investor-owned utility founded over 140 years ago. It serves a population of 20.9 million consumers over 20,000 square miles in Southern and Central California. In 2009, SCG sourced 86 percent of its natural gas supplies from southwestern and Rocky Mountain states, 8 percent from within California, and 6 percent from Canada.

3.11.2 IMPACT SIGNIFICANCE CRITERIA

The State CEQA Guidelines suggest that a project would normally be judged to produce a significant or potentially significant effect on the environment related to utilities and service systems if the project were to:

- *Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board (RWQCB).*
- *Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.*
- *Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.*
- *Have insufficient water supplies available to serve the project from existing entitlements and resources, or would require new or expanded entitlements.*
- *Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.*
- *Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.*
- *Be in noncompliance with federal, state, and local statutes and regulations related to solid waste.*

3.11.3 IMPACTS FOUND TO BE LESS THAN SIGNIFICANT

3.11.3.1 Water Utilities

- *The Project would not require or result in the construction of new water facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.*
- *The Project would have sufficient water supplies available to serve the project from existing entitlements and resources, and new or expanded entitlements are not needed.*

Estimates of increased water demand resulting from implementation of the FMPs are provided in Table 3.11-7. As previously stated, the water demand rate used in this table is derived from standard demand rates for junior colleges which were established in the 1990s. Since that time, domestic water fixtures and irrigation systems have become significantly more efficient, and landscaping has shifted towards more drought-tolerant, native species which dramatically reduce water use. Current, actual water use at Saddleback College is approximately 27 percent less than that predicted by the standard demand rate described below. Nonetheless, to ensure a conservative analysis of water use at the campuses, the standard water demand rate of 96 gpd per 1,000 gsf is used for estimation of both existing and future water demands.

**TABLE 3.11-7
PROJECT-RELATED INCREASES IN WATER DEMANDS**

Campus	FMP Development Increase (GSF)	Water Demand Rate¹	Total Water Demand (gpd)
Saddleback College	224,000	96 gpd/1,000 gsf	21,504
Irvine Valley College	157,000	96 gpd/1,000 gsf	15,072
¹ Demand rates from Santa Monica Community College Career and Educational Facilities Master Plan (2010 Update) EIR.			

The increase in water demand at Saddleback College equates to 24.1 AFY, and the increase at IVC equates to 16.9 AFY. This is a 32 percent increase from current use at Saddleback College and a 39 percent increase at IVC. It is noted that the new development on the campuses is below the minimum thresholds for preparation of a WSA (as established by California Water Code section 10912); therefore, no such assessment is needed.

Development under the FMPs would be subject to the water conservation regulations instituted by the MNWD and IRWD. Future development would be subject to the California Building Code, including the California Green Building Standards (CALGreen) Code (Title 24, Part 11), which includes standards for water conservation. CALGreen Code compliance will be evaluated for each proposed project implementing the FMPs at the time of project plan submission to the Division of the State Architect. The FMPs also require new construction of permanent campus buildings to achieve LEED compliance. The FMPs include water efficiency guidelines so that site and building design reduce water use and wastewater production. Elements to be considered include:

- Native and adaptive landscape planting to minimize water requirements
- Irrigation system minimization and efficiency
- Reuse of captured rainwater, when possible
- Reclaimed water for non-potable uses
- Water-conserving plumbing fixtures
- Incorporation of bioswales to reduce water run-off
- Sensors to control fixture operations

With mandatory LEED compliance, it is anticipated that water conservation features would result in a 20 to 30 percent reduction in water use from the baseline levels described in Table 3.11-7.

As indicated previously, the 2010 UWMPs prepared by MNWD and IRWD project that the water districts will be able to meet annual water demands through dry years and consecutive multiple dry years through the period analyzed (to the year 2035). MNWD, in its comment letter on the Notice of Preparation, preliminarily determined that the 2011 FMP projects would not conflict with existing MNWD water, sewer or recycled facilities. As FMP projects progress through the planning and engineering processes, proposed improvements may require that new water and sewer services be constructed or upgraded. MNWD indicated that as the scope of work of a particular project becomes more defined, and domestic/irrigation water demands are quantified, development plans for connections to the water, sewer and recycled systems are to be submitted to MNWD for review and approval. At that time, hydraulic modeling may also be performed to assess the performance of the distribution and collection systems under the new demands, and may identify the need for additional improvements. All applicable connection fees and charges will be due prior to MNWD signing approved improvement plans.

Although the project includes the development of new buildings and facilities pursuant to the 2011 FMPs, it would not be necessary for the campuses to obtain new or expanded entitlements. Impacts related to increased demand for water supply impacts are less than significant.

3.11.3.2 Wastewater Utilities

- *The Project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.*

The 2011 FMPs would have no known effects on wastewater treatment requirements issued by any Regional Water Quality Control Board (RWQCB). It is expected that the colleges will continue to operate in compliance with the standards of the San Diego RWQCB at the Saddleback College campus and the Santa Ana RWQCB at the IVC campus, as implemented by MNWD and IRWD as the wastewater treatment providers for the campuses. Therefore, the proposed project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board, and there is no impact associated with this issue area.

- *The Project would not require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.*
- *The Project would not result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.*

Estimates of increased wastewater generation resulting from implementation of the FMPs are provided in Table 3.11-8. As noted in Section 3.11.3.1, above, the water (and hence the wastewater) generation rates below are conservative over-estimations of actual use on the campuses.

**TABLE 3.11-8
PROJECT-RELATED INCREASES IN WASTEWATER GENERATION**

Campus	FMP Development Increase (GSF)	Wastewater Generation Rate ¹	Total Wastewater Generation (gpd)
Saddleback College	224,000	80 gpd/1,000 gsf	17,920
Irvine Valley College	157,000	80 gpd/1,000 gsf	12,560
¹ Generation rates from Santa Monica Community College Career and Educational Facilities Master Plan (2010 Update) EIR.			

As described in the Section 3.11.1.2, above, the four local wastewater treatment plants serving the MNWD and Saddleback College have a combined design capacity of 37.7 mgd and an average daily flow of 23.5 mgd, allowing surplus capacity of 14.2 mgd. The increase in wastewater generation at Saddleback College will require approximately 0.12 percent of this surplus capacity, reducing the surplus slightly to approximately 14.18 mgd, or 37.6 percent of the total capacity of the local treatment facilities.

The majority of wastewater collected within IRWD service area is presently treated at the Michelson and Los Alisos facilities. The Michelson facility is presently operating near its capacity of 18 mgd; however, it is currently undergoing an expansion to 28 mgd. This expansion is not a part of the proposed FMPs, and was previously analyzed in a separate EIR (SCH No. 2005051174, certified February 2006 by IRWD). The expansion should be completed in 2012. The increase in wastewater generation at IVC will require approximately 0.13 percent of the new capacity of the expanded

Michelson facility, reducing the surplus capacity slightly to approximately 9.88 mgd, or 35.3 percent of the total capacity of the treatment plant.

The measures described in Section 3.11.3.1, above, related to reductions in water demand will result in simultaneous reductions in wastewater generation. The use of low-flow or waterless fixtures will significantly reduce wastewater generation. With implementation of LEED standards, declines in wastewater generation of 20 to 30 percent may be expected.

Because regional wastewater treatment facilities have significant excess capacity, the Project would not require any expansion to these plants and would therefore not produce any significant environmental impacts in this issue area.

3.11.3.3 Solid Waste Facilities

- *The Project would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.*
- *The Project would comply with federal, state, and local statutes and regulations related to solid waste.*

The project components would contribute solid waste from construction and long-term operation. Waste generated during construction would include scrap lumber, packaging materials, plastics and inert waste (i.e., wastes such as dirt, concrete, asphalt, rocks, building materials, etc. that are not likely to produce leachates of environmental concern). Excavation of earth materials and removal of debris resulting from demolition activities would be disposed of at local landfills or nearby construction sites requiring additional fill material. It is also expected that construction-related wastes would be recycled, in accordance with current recycling and waste reduction programs. Typically, construction waste occurs over a short period of time and ceases following completion of the construction phase. The amount of waste generated from short-term construction would not be considered substantial. Therefore, construction impacts on the existing local landfill capacities are considered to be less than significant. However, operation of the project has the potential to contribute to significant solid waste impacts.

As discussed above, disposal capacity at the Bowerman Landfill is 4,197,500 tons per year, and the facility is anticipated to close in 2053. Disposal capacity at the Prima Deshecha Landfill is 1,460,000 tons per year, and the facility is anticipated to close in 2067. Estimated generation rates resulting from construction of the proposed FMP facilities at each campus are provided in Table 3.11-9. Waste generation is estimated using CalRecycle's standard generation rates for schools and institutions.

**TABLE 3.11-9
PROJECT-RELATED INCREASES IN SOLID WASTE GENERATION**

Campus	FMP Development Increase (GSF)	Generation Rate (lbs/sf/day)*	Total (lbs/day)
Saddleback College	224,000	0.007	1,568
Irvine Valley College	157,000	0.007	1,099
<i>Total Increase</i>			2,667 (1.33 tons/day)
* Generation rate is based on the school/institution rate from CalRecycle; http://www.calrecycle.ca.gov/WasteChar/WasteGenRates/Institution.htm			

As shown in the table, new construction on the campuses would produce 1.33 tons per day of waste, or approximately 485 tons per year. This amount equates to far less than one percent of the capacities of either the Bowerman or Prima Deshecha Landfills.

A Sustainable Principle of both FMPs is the reduction of the campus contributions to solid waste through diversion and recycling programs, as well as through recycled materials use and local materials use. Notably, the FMPs propose to divert 75 percent of construction waste as one element of the Materials and Resources Guideline. Other elements include:

- Re-use of existing building or site materials and construction waste;
- Regional and rapidly renewable materials specifications;
- Operation of a materials recycling program;
- Utilization of low maintenance, durable materials;
- Specification of materials and systems to minimize life-cycle cost impacts;
- Utilization of products free of unsafe chemicals or resins;
- Design of flexible environments to minimize secondary construction.

Because landfills in the region have adequate capacity to handle the Proposed Project's anticipated waste generation, measures are proposed in the FMPs which would further reduce waste below levels typically seen at other educational facilities, and the campuses would continue to be comply with federal, state, and local regulations related to solid waste, the impacts associated with solid waste production are less-than-significant.

3.11.3.4 Storm Drainage Facilities

- *The Project would require the construction of new stormwater drainage facilities or expansion of existing facilities; however, the construction of those facilities would not cause significant environmental effects.*

Please refer to Section 3.6 (*Hydrology and Water Quality*) for a discussion of environmental impacts associated with expansion of the storm drain system.

3.11.3.5 Energy Utilities

The EIR's discussion of energy utilities is focused on the issue of whether the FMPs minimize inefficient and unnecessary consumption of energy. The increase in energy consumption with implementation of the FMPs, but without the incorporation of any energy conservation measures, is estimated in Table 3.11-10. The increase of 2,587,200 kWh/year at the Saddleback College campus equates to an increase of 32 percent over the estimated current use, and the increase of 1,813,350 kWh/year at the IVC campus equates to an increase of 39 percent over the estimated current use.

**TABLE 3.11-10
PROJECT-RELATED INCREASES IN ELECTRICITY DEMAND**

Campus	FMP Development Increase (GSF)	Energy Consumption Rate (kWh/sf/year) ¹	Total Energy Consumption (kWh/year)
Saddleback College	224,000	11.55	2,587,200
Irvine Valley College	157,000	11.55	1,813,350

¹ Energy consumption rate from Santa Monica Community College Career and Educational Facilities Master Plan (2010 Update) EIR, and are based on the SCAQMD CEQA Air Quality Handbook (1993).

CEQA Appendix F: Energy Conservation, lists the following as means of achieving the goal of efficient use of energy:

- (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.

Currently, projects in the State of California must meet energy efficiency code compliance as described by the California Building Standards Code, including the California Energy Code and the CALGreen Building Code. In addition, optional measures of sustainable design measurement, such as LEED, are objectives for any new building or campus infrastructure project. The FMPs propose standards of design that should exceed Title 24 by a minimum of 15 percent, meet USGBC LEED Silver compliance, and incorporate utility provider incentive programs such as “Savings by Design” and “Energy Star.”

A range of energy conservation efforts have been implemented across the Saddleback College and IVC campuses. Cogeneration facilities at both campuses significantly reduce the demand for energy to be purchased from local utilities, and allow for the efficient use of both electricity and heat produced during the generation process. Heat generated by the generators maintains building interior and swimming pool temperatures. Photovoltaic panels, which convert sunlight to electricity, are now in place on the IVC campus. Other efforts include the use of “cool roofs” (light-colored roofs that reflect sunlight to reduce air conditioning costs) and improved building insulation to reduce heating and cooling needs.

New construction also takes into account energy conservation as a goal of building design. For example, the BSTIC facility at IVC was oriented to minimize energy use and incorporated overhangs for shading and a free-standing wall adjacent to the building which reduces heat gain caused by the hot afternoon sun.

Documented annual energy savings from programs currently in place at Saddleback College include:

- Energy Conservation: saved 1 million kWh
- Cogeneration Facility: provided 8.5 million kWh

Documented energy savings at IVC include:

- Cogeneration Facility: saved 1.45 million kWh
- Solar Photovoltaic Installations (Hart Gymnasium): provided 0.3 million kWh

The energy conservation measures proposed in the FMPs are designed to meet the Appendix F energy efficiency goals. Both FMPs have Sustainable Sites guidelines with energy elements focusing on site design and landscaping, including the following:

- Orientation of building form to reduce heat gain and energy consumption
- Landscape design to enhance passive cooling
- Lighting design to reduce energy consumption and light pollution

The Energy and Atmosphere Guideline provides building design and energy-conserving technology elements to be considered, including the following:

- Building commissioning to ensure systems efficiency;
- Energy Star certified high-efficiency equipment specifications;
- High-efficiency lighting;

- Occupancy sensors to minimize artificial lighting use;
- Incorporation of appropriate natural day-lighting;
- Use of natural refrigerants;
- Roof surfaces to reflect solar radiation, such as “cool roofs”;
- High-efficiency building insulation;
- High-efficiency glazing and glazing systems; and
- Incorporation of renewable energy and/or “green power.”

With implementation of the energy efficiency measures included in the FMPs, and continued compliance with the standard measures included in the California Energy Code and the CALGreen Code, impacts associated with increased energy use are less-than-significant.

3.11.4 POTENTIAL IMPACTS AND MITIGATION MEASURES

No impacts have been identified and no mitigation measures are required.

3.11.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Project impacts have been determined to be less-than-significant without the need for mitigation measures.

3.11.6 CUMULATIVE IMPACTS

The District's environmental sustainability, resource conservation, and waste reduction policies in effect at both the Saddleback College and IVC campuses will result in less-than-significant cumulative impacts in the areas of water consumption, wastewater generation, solid waste reduction, and energy use. No adverse cumulative impacts would result.

3.12 AESTHETICS

3.12.1 EXISTING SETTING

3.12.1.1 Viewsheds and Visual Sensitive Receptors

Saddleback College

Saddleback College was founded in 1968, and the first campus buildings were constructed shortly thereafter. The campus was one of the early developments in this portion of Mission Viejo and has become an important element in the area's visual character. Onsite development including buildings, parking areas, sports fields, and outdoor landscaped areas has occurred regularly since its founding. Surrounding land uses include commercial and multifamily residential development to the west and north, along Marguerite Parkway and Center Drive; single-family residential development to the south; and open space, including public access trails, along Trabuco Creek to the east. Residential uses and trails are considered sensitive visual receptors.

Irvine Valley College

Irvine Valley College was founded in 1979, and the first campus buildings were constructed shortly thereafter. The campus is now an established element of the area's visual character. Onsite development including buildings, parking areas, sports fields, and outdoor landscaped areas has occurred regularly since its founding. Surrounding land uses include power transmission lines to the south and west; single- and multifamily residential development to the south, east, and west; and a golf course to the north. Residential uses surrounding the site are considered sensitive visual receptors.

3.12.1.2 State Scenic Highways

Saddleback College

There are no designated State scenic highways in the vicinity of Saddleback College. Ortega Highway (SR-74) is located three miles south of the campus. Due to distance, intervening topography, and urban development, the campus is not visible from the highway.

Irvine Valley College

There are no designated State scenic highways in the vicinity of IVC.

3.12.1.3 Light and Glare

Definitions and Descriptions

Light pollution includes misdirected light, stray light, avoidable reflected light, light during hours when it is not needed, and light levels in excess of what is necessary for the task. Outdoor lighting can be designed to minimize obtrusive and stray light. Light pollution affects wildlife in undeveloped natural habitat areas, as well as the use and enjoyment of property. It also interferes with astronomy and it wastes energy.

According to the Illuminating Engineering Society of North America (IESNA), light trespass complaints can usually be classified into two categories:

- 1) Light spillover is unwanted light illuminating an area or property, and

- 2) Glare is excessive brightness in the normal field of vision. Glare problems may be the result of reflective building surfaces, such as glass or polished metals, causing sunlight to reflect into fields of vision. Glare can also be a nighttime issue when the lamps in high-intensity lighting fixtures are visibly prominent, particularly when contrasted against a dark sky.

Light and Glare Sources

Existing sources of light and glare on the Saddleback College and IVC campuses include streetlights, security lighting, signage lighting and parking lot lights. The most prominent sources of lighting are generally at outdoor athletic fields; however, there is no athletic field lighting at IVC. According to the district, there is no history of lighting complaints at either campus.

At present, there is field lighting provided at most sports facilities on the Saddleback College campus. In the southern and central areas of Saddleback College, the stadium (track and football field) has six pole-mounted luminaires, or fixtures, for nighttime field illumination. Each of the 150-foot tall poles supports a 24-lamp fixture that is oriented toward and directly illuminates only the athletic field/track facility. On average, this athletic facility hosts nighttime events nightly during a given sport's season, and a minimum of one time per week during the off-seasons.

The golf practice facility immediately west of the track/football stadium includes a 375-yard driving range and separate putting greens at the north and south ends of the driving range. The driving range has six 25- to 45-foot poles at either end and three along the western perimeter. The practice golf greens are both lit by three similar pole and fixture configurations. The golf practice facilities are open to the public until 10:00 p.m. seven days a week.

The softball fields just north of the driving range are lit by ten similar configurations. There is also field lighting at the baseball facility in the eastern portion of the Campus. Six light poles provide light banks with two each of 11-, 20- and 29-lamp fixtures. Eight single-lamp pole-mounted fixtures per court light the adjacent six tennis courts. These facilities host team competitions on a regular basis throughout the season.

Light and Glare Receptors

Off-site lighting sources from the areas surrounding both campuses are numerous, though typical of urbanized residential and commercial areas. None are known to be sources of light spillover or nighttime glare. It is assumed that all off-site lighting meets municipal code requirements for safety and energy efficiency.

Saddleback College

Residents generally south of the campus are about 550 feet to 1,000 feet from the closest track/football field lights. Based on a street-level reconnaissance from the residential area to the south, the existing field lights are visible in varying degrees. For the nearest residents to the south, field lighting fixtures are increasingly visible along Las Tunas Drive heading northeasterly. Visibility ranges from two fixtures at Via Coronado up to six fixtures where Las Tunas turns east. Several view locations include the stadium lighting as well as some fixtures at or near the golf practice facility. Limited segments of Escalona Drive and El Mio Lane also have views of the field lighting, though from more distant vantage points (i.e., in excess of 1,100 feet). Given the lighting direction toward the track/football facilities, light spillover does not occur. However, the high-intensity flood lamps are visible from some vantage points and constitute a source of glare.

North of Avery Parkway, the golf practice facility lighting might be visible from some locations along Via Coronado. However, views of facility lighting are brief, heavily obstructed by trees, and the

fixtures are not obtrusive sources of glare. Although briefly visible from Plata Drive at Jacinto Drive, homes south of Avery Parkway have little or no line-of-sight visibility to light sources at the golf practice facility. Private landscaping and walls, as well as mature trees at the campus perimeter and along Avery Parkway, block most views toward the campus.

Lighting for the softball, baseball and tennis facilities is not distinguishable in most views of the campus. Of note, however, is the adjacent habitat area in the Arroyo Trabuco, which is unlit and not presently affected by ambient light spillover from nearby development, including the campus athletic field lighting.

Irvine Valley College

There is no athletic field lighting at IVC and no affected receptors exist. Existing light sources do not create adverse spillover effects on nearby residential properties.

3.12.2 IMPACT SIGNIFICANCE CRITERIA

Based on the criteria presented in the CEQA Guidelines, Appendix G (Environmental Checklist), significant aesthetic impacts would result if the Proposed Project would:

- *Have a substantial adverse effect on a scenic vista.*
- *Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway.*
- *Substantially degrade the existing visual character or quality of the site and its surroundings.*
- *Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.*

3.12.3 IMPACTS FOUND TO BE LESS THAN SIGNIFICANT

3.12.3.1 Viewsheds and Visual Character

- *The Proposed Project would not have a substantial adverse effect on a scenic vista.*

The Proposed Project would add new buildings and facilities to the existing Saddleback College and IVC campuses. The 2011 FMPs provide illustrative planning concepts for new roadways, parking layout, building shapes, site planning, landscape planning, and pedestrian pathways serving the campuses. Implementation of the FMPs would result in changes in the location and appearances of structures throughout the campuses. However, the overall appearance would remain consistent with that of the existing campuses. New buildings would be similar in scale, size, and use to existing structures, and would not be located closer to visual sensitive receptors, such as adjacent residential uses.

Moreover, no scenic vistas within the campus project areas have been identified in the General Plans for the cities of Mission Viejo or Irvine. Therefore, the Proposed Project would not result in a less than significant impact on a designated scenic vista.

- *The Proposed Project would not substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway.*

As indicated previously, neither of the campuses is in the vicinity of a state scenic highway corridor. Therefore, implementation of the FMPs would have no impact on scenic resources within a state scenic highway.

- *The Proposed Project would not substantially degrade the existing visual character or quality of the site and its surroundings.*

The Proposed Project would not substantially degrade the existing visual character or quality of the campuses or their surroundings because the existing campuses have been located on their respective sites for over 30 years, and are now part of the existing visual character and quality. The Proposed Project would result in the construction of new structures of similar size, scale, and use to those already on the campuses. The new structures would not be located closer to sensitive receptors than current buildings. Additionally, the FMPs contain visions for the campuses that would result in aesthetic enhancements. For example, the FMPs call for the creation of clear identities and prominent entryways for each campus, and the elimination of portable structures for permanent instructional or support use. For these reasons, development pursuant to the FMPs would add a variety of new building and facilities to the campuses that would result in visual changes, but would have less-than-significant adverse impacts.

3.12.3.2 Light and Glare

- *The Proposed Project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.*

General Effects

In analyzing lighting impacts, it is common to evaluate the significance of placing new light sources in previously unlit views. Such nighttime viewshed analyses, supported by photometric calculations, use a methodology that hinges on whether the project would create a source of noticeable ambient lighting in an area otherwise devoid of light sources. In the case of the existing Saddleback College and IVC campuses, both have long been a part of the surrounding community. Along with that surrounding urban development, both campuses are already a source of light and glare in the project vicinity, albeit not intrusive at present.

The 2011 FMPs propose new structures, walkways, and parking areas that will also be a source of light and glare. However, due to the urbanized nature of the project vicinity and the FMP's provisions for minimizing additional light and glare, new Campus development is not expected to adversely affect day or nighttime views in the area.

The 2011 FMPs provide for varied placement and types of site lighting in ways that minimize light pollution while meeting lighting and security needs. As per district lighting criteria, new site and outdoor lighting will be full-cutoff type, where needed. A full-cutoff fixture is one that allows no light emission above a horizontal plane through the fixture.

The FMPs indicate that all existing parking lot lighting will eventually be replaced with new energy-efficient LED or induction lighting. Pole type lighting will be full-cutoff type, where needed. Path lighting may also be bollard type or in-ground, and landscape lighting will be in-ground. Both types are low, shielded, and/or have limited areas of illumination. These criteria will prevent diffuse light spillover outside the Campus boundaries. In addition, all new and renovated buildings will have occupancy sensors and automatic daylighting controls, which will minimize unnecessary internal illumination and nighttime visual disturbance. The FMP standards and provisions for controlling light spillover and light pollution will maintain related impacts at levels that are less than significant.

Athletic Field Lighting

Since no athletic field lighting is proposed as part of the 2011 FMP for Irvine Valley College, no light or glare impacts will occur at the IVC campus. This section pertains only to the Saddleback College campus.

The 2011 FMP for Saddleback College proposes renovation of the existing lighted stadium, which includes a football field and an NCAA regulation size running track. The collegiate baseball and softball fields will remain at their present location as well, though additional bleacher seating will be constructed. The collegiate baseball and softball fields will maintain their existing lighting. The proposed throwers' park and the new practice field just east and south of the baseball field, respectively, may introduce new night lighting sources in the vicinity of the Arroyo Trabuco open space.

Sportsfield lighting, due to its height and contrast with the dark sky and surrounding landscape, is typically noticeable for extended distances from the point of origin even if the lamps are not directly visible offsite. Even with the use of light-control visors, the introduction of stadium lighting could have some effect on surrounding land uses. For field lights directed toward the viewer, light would be reflected from the lower part of the reflector housing that would be seen from off-site points lower than the assumed 70- to 90-foot-tall lights. However, given the existing field lighting, no new poles or masts are anticipated that would exceed the height of the field lights that are already present at those facilities. Therefore, existing sensitive receptors would see no changes in that regard.

At the time this EIR was prepared, no lighting plans were available to quantitatively analyze the specific spillover or glare effects of a particular field lighting project. However, all 2011 FMP athletic facilities projects requiring new or modified exterior lighting will adhere to the following design principles:

- **Energy Efficiency:** New lighting systems will fall under the 2011 FMP standards for energy-efficiency and will be consistent with the design objective of minimizing obtrusive glare and light spillover effects on surrounding residents and other sensitive receptors. This will include specifying the installation of Energy Star-certified (or equivalent) energy efficient street, parking area, and field lighting.
- **Activity-Specific Lighting Criteria:** The architect and/or lighting consultant will define criteria for designing lighting systems that are appropriate for the activities, paying special attention to their location in relation to residential neighborhoods and nearby natural habitat areas. Various lighting guides and lighting specifications are available, recommending appropriate illuminance levels for individual sports. Within the U.S., the Illuminating Engineering Society of North America (IESNA) provides standards for minimum sports lighting levels. In addition, many sports governing bodies also provide separate specific lighting requirements. The architect and/or lighting consultant will apply the relevant requirements.

The architect/lighting consultant will ensure that all lights used to illuminate the fields and spectator areas are designed, located, and arranged so as to meet, but not exceed, appropriate luminance levels and to ensure that lighting is not a source of direct glare on surrounding uses. As indicated in IESNA's *Recommended Practice for Sports and Recreational Area Lighting* (IESNA RP-6-01), criteria for new lighting systems will include player and spectator requirements and illuminance recommendations appropriate to the sport-specific or multi-sport field/stadium. The design will consider the fundamentals of good illumination, equipment and design factors, power and wiring, illuminance calculations, field measurements, floodlight aiming, maintained illuminance levels, and economic/energy-efficiency analyses.

Whether using IESNA, International Dark-Sky Association or other criteria to evaluate spill light from the outdoor athletic fields, it is reasonably expected that projects would not exceed even the most rigorous standard of 0.1 foot-candles¹ due to the light source distances from sensitive receptors. The 0.1 foot-candle metric is generally achieved within 500 feet from the light source. The nearest residential receptor is over 500 feet from existing and anticipated future field lighting. Particular attention will be given to the areas along the eastern edge of campus, adjacent to and less than 500 feet from the Arroyo Trabuco open space. If lighting is proposed at the new throwers' park and/or practice field, it will be oriented away from the off-site habitat areas and additional fixture shielding provided. In addition, lighting along the proposed Loop Road will be energy-efficient LED light fixtures with shielding to prevent spillover and glare from adversely affecting these sensitive areas.

- **Fixture Shielding:** At all new or renovated facilities, lighting will be focused on the playing fields and light spillage controlled. The technical specifications for field lighting will implement fully-shielded lighting where possible and professional design and post-installation certification to ensure that standards are followed. Such lighting fixtures will be effectively shielded, or hooded, to prevent direct off-site visibility of the lamps, and lighting will be directed away from off-site public and other sensitive viewing positions. Fixtures that may be used include those that use a reflector and visor assembly that directs the light onto the field, reducing sky-glow and spill light onto neighboring properties, and reducing glare on and off of the field.
- **Timer Systems:** Whether manual or automatic, these systems will define hours and durations for operation of all field lighting systems. These operating parameters will ensure that energy conservation is maximized and nuisance lighting is avoided.

Saddleback College Loop Road Lighting

The preliminary site lighting study for the proposed Loop Road includes plans, fixture specifications, and photometric calculations for a new state-of-the-art Light Emitting Diode (LED) site lighting system. The LED roadway and parking lot lighting systems will be designed to the following criteria:

- Roadways: One (1) minimum foot-candle maintained;
- Parking Lot 1: Two (2) minimum foot-candles maintained;
- Maximum pole height: Will be 25 to 30 feet per existing conditions.

Section 3.8 (*Biological Resources*) states that the off-campus area east of the proposed Loop Road alignment is critical habitat for the coastal California gnatcatcher (CAGN). To minimize interference with breeding and foraging activities of the CAGN, the Loop Road lighting design is consistent with the 'Avoidance and Minimization Measures' specified by the U.S. Fish and Wildlife Service (USFWS). It will use and install lighting fixtures that are shielded and oriented such that light is directed away from the CAGN habitat. With this measure, the USFWS has indicated that the Loop Road lighting is not likely to adversely affect the species.

¹ The unit used to measure illumination, or light intensity, is the foot-candle. A foot-candle is defined as the amount of light received by one square foot of a surface that is one foot from a point source of light equal to one candle of a certain type. Illumination is dependent on the illuminated surface's distance from, and angle with respect to, the light source.

3.12.4 POTENTIAL IMPACTS AND MITIGATION MEASURES

The FMP standards and provisions for controlling light spillover and light pollution, as implemented by the Colleges, will maintain related impacts at levels that are less than significant. Since no significant impacts have been identified, no mitigation measures are necessary.

3.12.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

No mitigation measures are required.

3.12.6 CUMULATIVE IMPACTS

The campuses are located in areas that are already fully developed, and no significant redevelopment of areas of visual sensitivity is proposed in the cumulative impacts scenario. Therefore, implementation of the FMPs would not result in aesthetics impacts when combined with the impacts of other projects in the cumulative development scenario.

Through the implementation of the district's standard practices, projects in the FMP, lighting and glare impacts from future development on the Saddleback College and IVC campuses would be minimal and therefore would not combine with the impacts from other projects in the cumulative development scenario to result in significant cumulative impacts. No adverse cumulative impacts related to lighting or glare would result.

3.13 AGRICULTURE AND FOREST RESOURCES

3.13.1 EXISTING SETTING

3.13.1.1 Regulatory Setting

Federal Regulations

Farmland Protection Policy Act (7 U.S.C. Section 4201)

The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. It additionally directs federal programs to be compatible with State and local policies for the protection of farmlands. Congress passed the Agriculture and Food Act of 1981 (Public Law 97-98) containing the FPPA—Subtitle I of Title XV, Section 1539-1549. The final rules and regulations were published in the Federal Register on June 17, 1994.

The FPPA is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that, to the extent possible, federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every two years. The FPPA does not authorize the Federal Government to regulate the use of private or nonfederal land or, in any way, affect the property rights of owners.

For the purpose of FPPA, farmland includes Prime Farmland, Unique Farmland, and Farmland of Statewide or Local Importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or with assistance from a federal agency.

State Regulations

California Department of Conservation, Division of Land Resource Protection

The DOC applies the Natural Resources Conservation Service (NRCS) soil classifications to identify agricultural lands, and these agricultural designations are used in planning for the present and future of California's agricultural land resources. Pursuant to the DOC's Farmland Mapping and Monitoring Program (FMMP), these designated agricultural lands are included in the Important Farmland Maps used in planning for the present and future of California's agricultural land resources. The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and the conversion of these lands. The FMMP provides analysis of agricultural land use and land use changes throughout California. The DOC has a minimum mapping unit of 10 acres, with parcels that are smaller than 10 acres being absorbed into the surrounding classifications.

The list below provides a comprehensive description of all the categories mapped by the DOC. Collectively, lands classified as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland is referred to as Farmland.

- **Prime Farmland.** Farmland that has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **Farmland of Statewide Importance.** Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **Unique Farmland.** Farmland of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
- **Farmland of Local Importance.** Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- **Grazing Land.** Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.
- **Urban and Built-up Land.** Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, institutional, public administrative purposes, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
- **Other Land.** Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

California Land Conservation Act (Williamson Act)

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is promulgated in California Government Code Section 51200-51297.4, and therefore is applicable only to specific land parcels within the State of California. The Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses in return for reduced property tax assessments. Private land within locally designated agricultural preserve areas is eligible for enrollment under Williamson Act contracts. An agricultural preserve must consist of no less than 100 acres.

The Williamson Act program is administered by the DOC, in conjunction with local governments, which administer the individual contract arrangements with landowners. The landowner commits the parcel to a 10-year period wherein no conversion out of agricultural use is permitted. Each year the contract automatically renews unless a notice of non-renewal or cancellation is filed. In return, the land is taxed at a rate based on the actual use of the land for agricultural purposes, as opposed to

its unrestricted market value. An application for immediate cancellation can also be requested by the landowner, provided that the proposed immediate cancellation application is consistent with the cancellation criteria stated in the California Land Conservation Act and those adopted by the affected county or city. Non-renewal or immediate cancellation does not change the zoning of the property. Participation in the Williamson Act program is dependent on county adoption and implementation of the program and is voluntary for landowners.

Farmland Security Zone Act

The Farmland Security Zone Act is similar to the Williamson Act and was passed by the California State Legislature in 1999 to ensure that long-term farmland preservation is part of public policy. Farmland Security Zone Act contracts are sometimes referred to as “Super Williamson Act Contracts.” Under the provisions of this act, a landowner already under a Williamson Act contract can apply for Farmland Security Zone status by entering into a contract with the county. Farmland Security Zone classification automatically renews each year for an additional 20 years. In return for a further 35 percent reduction in the taxable value of land and growing improvements (in addition to Williamson Act tax benefits), the owner of the property promises not to develop the property into nonagricultural uses.

Public Resources Code Section 21060.1

PRC Section 21060.1 defines agricultural land for the purposes of assessing environmental impacts using the FMMP. The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and the conversion of these lands. The FMMP provides analysis of agricultural land use and land use changes throughout California.

3.13.1.2 Environmental Setting

Agricultural land uses on the campuses are limited to approximately 11 acres at the southwestern corner of the IVC campus. Adjacent to the 11-acre field is a further 19 acres of agricultural land located outside the campus boundaries. The agricultural land on the IVC campus has been designated by the DOC as Prime Farmland.

There is no farmland on the Saddleback College campus, and there is no forest land on either of the campuses. There are no Williamson Act or Farmland Security Zone contracts in place on either of the campuses.

3.13.2 IMPACT SIGNIFICANCE CRITERIA

The State CEQA Guidelines suggest that a project would normally be judged to produce a significant or potentially significant effect on the environment related to agriculture and forest resources if the project were to:

- *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-agriculture use.*
- *Conflict with existing zoning for agricultural use, or a Williamson Act Contract.*
- *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)).*

- *Result in the loss of forest land or conversion of forest land to non-forest use.*
- *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.*

3.13.3 IMPACTS FOUND TO BE LESS THAN SIGNIFICANT

3.13.3.1 Agricultural Land

- *The Project will not conflict with existing zoning for agricultural use, or a Williamson Act Contract.*
- *The Project will not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use.*

The college campuses are currently consistent with their respective underlying General Plan and Zoning designations. Saddleback College is designated Community Facility and zoned Community Facility (CF) by the City of Mission Viejo. IVC is designated E (Educational Facilities) and zoned Institutional (6.1) by the City of Irvine. The FMPs would develop new instructional and support facilities at the campuses which are consistent with the underlying General Plan and zoning designations.

There is no existing zoning for agricultural use on the Saddleback College or IVC campuses. There are no Williamson Act contracts in place on either of the campuses. Farmland located adjacent to the IVC campus will not be impacted by implementation of the FMPs with the exception of a less than 0.5-acre area impacted by the Barranca Parkway Access Road. The road alignment and design has already been approved and is in the construction design phase. This Farmland is located underneath power transmission line rights-of-way, and there are few alternative land uses which could be realized on these properties. There is no impact related to conflicts with agricultural zoning or Williamson Act contracts, or with changes to the existing environment associated with the implementation of the FMPs.

3.13.3.2 Forest Land

- *The Project will not 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)).*
- *The Project will not result in the loss of forest land or conversion of forest land to non-forest use.*
- *The Project will not involve other changes in the existing environment which, due to their location or nature, could result in conversion of forest land to non-forest use.*

There is no existing zoning for forest land, timberland, or timberland zoned Timberland Production on the Saddleback College or IVC campuses. There is no forest land on either of the campuses, nor is there forest land in the vicinity of the campuses which could be converted to non-forest use as a result of changes to the existing environment associated with implementation of the FMPs. There is no impact related to the conversion of forest land.

3.13.4 POTENTIAL IMPACTS AND MITIGATION MEASURES

3.13.4.1 Agricultural Land

- *The Project will 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.*

Implementation of the FMPs would result in the conversion of approximately 11 acres of Prime Farmland on the IVC campus. This is a significant impact. Although the site contains agricultural use, this use has long been considered only an interim land use that would be replaced by educational facilities as demand for such facilities in the region increases. Past FMPs have consistently called for ultimate build-out of the campus to include construction on this agricultural land. Further, the site's City of Irvine General Plan designation of Educational Facilities and zoning designation of 6.1 (Institutional) have been in place for decades, indicating the City has long planned for and encouraged the development of educational land uses on the IVC campus. The approved contract with the operator of the site provides for the termination of the agricultural use once campus expansion requires use of the site.

Possible mitigation for this impact would be the retention of agricultural land onsite, the purchase and preservation of agricultural land elsewhere in the City or region, or the placement of conservation easements on agricultural land elsewhere in the City or region. The preservation of agricultural land on the IVC campus is considered as a project alternative in Chapter 5 (*Project Alternatives*). However, due to the limited amount of agricultural land remaining in Orange County, and the presence of General Plan policies in Irvine and other cities which permit and encourage the development of urban land uses on agricultural lands, mitigation measures involving the preservation of agricultural land offsite are considered infeasible. Agricultural uses were maintained on the site for the sole purpose of interim economic benefits to the district until IVC campus expansion necessitated development on this site.

3.13.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impacts are significant and unmitigable because no feasible mitigation measures are available to mitigate for the loss of agricultural land.

3.13.6 CUMULATIVE IMPACTS

The campuses are located in urbanized areas with little remaining agricultural land. Most remaining agricultural areas within the city of Irvine are planned (based on Irvine General Plan land uses) for future urban development. Conversion of agricultural land to urban uses is a continuing trend in Orange County and throughout Southern California. Pressure to develop agricultural land exists throughout the region. Thus, the loss of agriculture in the surrounding area is expected to occur with or without the implementation of the FMPs. For these reasons, the Proposed Project would not contribute to cumulatively significant impacts related to agriculture and forest resources.

4.0 ATEP ANALYSIS

4.1 BACKGROUND AND PRIOR ANALYSES

Development of new structures and facilities at the ATEP campus were previously analyzed and environmentally cleared by the following documents:

1. “Final Environmental Impact Statement/Environmental Impact Report for the Disposal and Reuse of the Marine Corps Air Station Tustin,” certified by the Department of the Navy and City of Tustin in 2001 (FEIS/EIR) (State Clearinghouse No. 94071005).
2. “Advanced Technology & Education Park (ATEP) Long Range Academic and Facilities Plan (LRP), Long Range Academic Plan (LRAP), and Mitigation Measures and 2008 Traffic Study Addendum/Initial Study,” prepared by RGP Planning and Development Services in March 2008 (2008 LRP/LRAP Addendum).
3. “Advanced Technology & Education Park (ATEP) Phase 3A Concept Plan Project Addendum/Initial Study,” prepared by RGP Planning and Development Services in March 2009 (2009 Phase 3A Addendum).

The City of Tustin and United States Department of Navy completed a joint planning document for reuse of the former Marine Corps Air Station (MCAS Tustin) called the MCAS Tustin Specific Plan/Reuse Plan dated October 1996. The City of Tustin approved a number of amendments to the Plan subsequent to its approval in 2001. In accordance with CEQA and the National Environmental Policy Act (NEPA), the City of Tustin and Navy prepared FEIS/EIR, for the MCAS Tustin Specific Plan/Reuse Plan. The City certified the FEIS/EIR on January 16, 2001 and the Navy issued a Record of Decision (ROD) on March 3, 2001 approving the FEIS/EIR and the Specific Plan. There has been one supplement and several addenda to the FEIS/EIR that are collectively referred to herein as the FEIS/EIR. The ATEP campus area and future development of education-related facilities at the campus were part of the overall project area that was analyzed by the FEIS/EIR.

A transfer of ownership is described in the April 22, 2004 *Agreement between the City of Tustin and the South Orange County Community College District for Conveyance of a Portion of MCAS, Tustin and the Establishment of an Advanced Technology Educational Campus* (“conveyance agreement”). The City of Tustin agreed in the conveyance agreement to convey property comprising approximately 68.37 acres (the ATEP campus) to SOCCCD.

The 2008 LRP/LRAP Addendum was later prepared to specifically evaluate environmental impacts resulting with implementation of ATEP’s LRP/LRAP (see Section 2.6.3, Approved ATEP Building and Site Improvement Projects), implementation of applicable mitigation measures from the FEIS/EIR, and implementation of recommendations made in the 2008 Traffic Studies that were prepared for the ATEP campus and included in the 2008 LRP/LRAP Addendum. The FEIS/EIR and 2008 LRP/LRAP Addendum provided the necessary environmental clearances and evaluated environmental impacts resulting directly with construction of the 893,851 square feet of structures, facilities, and improvements at the ATEP College campus. The 2008 LRP/LRAP Addendum was certified by the SOCCCD Board of Trustees on November 12, 2008.

In 2009, the 2009 Phase 3A Addendum was prepared to provide environmental clearance and subsequent evaluations for development of the 3A Phase of the proposed ATEP campus. This particular phase considered development of 305,000 square feet of the total 893,851 square feet of development at the ATEP campus.

4.2 ASSESSMENT OF REQUIRED ADDITIONAL ANALYSIS

Within the ATEP LRP/LRAP area and more specifically, the Phase 3A Concept Plan area, the 2011 IVC FMP describes one multi-story 30,000 gross square feet (GSF) building as the next phase of LRP/LRAP and Phase 3A Concept Plan implementation. The district has also discussed the construction of two 30,000 GSF single story buildings in public Board of Trustees hearings and programming meetings with faculty and staff. These buildings and related site work require district approval of plans, and were considered as part of the phased build out of the ATEP campus in the FEIS/EIR, 2008 LRP/LRAP Addendum and 2009 Phase 3A Addendum. The City of Tustin also has certain review and/or approval rights of plans per the conveyance agreement for the ATEP campus.

Section 15162 of the CEQA Guidelines states the conditions under which additional environmental evaluation of a project would be required. Additional evaluation is required if any of the following conditions exist:

- (1). Changes to the project that require major revisions to the previously certified EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified effects;
- (2). Substantial changes with respect to the circumstances under which the project is undertaken that require major revisions to the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously-identified effects; or
- (3). The availability of new information of substantial importance, which was not known or could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified, shows that the project will have one or more significant effects not discussed in the previous EIR, significant effects previously examined will be substantially more severe than shown in the previous EIR, or mitigation measures or alternatives that were previously found not to be feasible or that are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponent declines to adopt the mitigation measure or alternative.

The IVC FMP does not contain changes to the analyzed and approved ATEP development plans in the LRP or Phase 3A Concept Plan. There are no new significant environmental effects or substantial increases in the severity of previously identified effects, nor is there any modification to the mitigation measures previously identified and implemented to reduce impacts resulting from development at the ATEP campus. In addition, no new information of substantial importance shows that mitigation measures or alternatives that were previously found not to be feasible or that are considerably different from those analyzed in the previous CEQA documents would substantially reduce one or more significant effects on the environment. For these reasons, none of the three conditions described in CEQA Guidelines Section 15162 are present, and no additional assessment of impacts at this campus are required as part of this program EIR.

5.0 PROJECT ALTERNATIVES

5.1 INTRODUCTION

CEQA requires that an EIR describe a range of reasonable alternatives to the Proposed Project that could feasibly avoid or lessen any significant environmental impacts of the Proposed Project while attaining most of the project's basic objectives. An EIR also must compare and evaluate the environmental effects and comparative merits of the alternatives. This chapter describes alternatives considered but eliminated from further consideration (including the reasons for elimination), and compares the environmental impacts of several alternatives retained with those of the Proposed Project.

The following are key provisions of the *CEQA Guidelines* (Section 15126.6):

- The discussion of alternatives shall focus on alternatives to the proposed project or its location that are capable of avoiding or substantially lessening any significant effects of the proposed project, even if these alternatives would impede to some degree the attainment of the proposed project objectives, or would be more costly.
- The No Project Alternative shall be evaluated, along with its impacts. The no project analysis shall discuss the existing conditions at the time the notice of preparation was published, as well as what would be reasonably expected to occur in the foreseeable future if the proposed project were not approved, based on current plans and consistent with available infrastructure and community services.
- The range of alternatives required in an EIR is governed by a “rule of reason”; therefore, the EIR must evaluate 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 proposed project.
- For alternative locations, only locations that would avoid or substantially lessen any of the significant effects of the proposed project need be considered for inclusion in the EIR.
- An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote and speculative.

The range of feasible alternatives is selected and discussed in a manner to foster meaningful public participation and informed decision-making. Among the factors that may be taken into account when addressing the feasibility of alternatives (as described in Section 15126.6(f)(1) of the *CEQA Guidelines*) are environmental impacts, site suitability, economic viability, social and political acceptability, technological capacity, availability of infrastructure, general plan consistency, regulatory limitations, jurisdictional boundaries, and whether the proponent could reasonably acquire, control, or otherwise have access to an alternative site. An EIR need not consider an alternative whose effects could not be reasonably identified, whose implementation is remote or speculative, and that would not achieve the basic project objectives.

5.1.1 Criteria for Selection of Alternatives

The definition and selection of alternatives must consider how the alternative fulfills the project objectives and how the alternative either reduces significant, unavoidable impacts or substantially reduces the impacts to the surrounding environment. Those criteria are key to the following analysis and clearly limit the scope of this chapter. As indicated in Section 2.1 (*Project Background*), the

district engaged hundreds of students, faculty, staff, administrators, trustees and members of the community in participatory processes during planning and formulation of the 2011 EMPs and FMPs.

Each campus FMP is also the result of collaboration among a team of educational and site planners, engineers, architects, and other specialized consultants evaluating a range of issues including traffic, utilities, infrastructure, geotechnical constraints, energy technologies, and space planning and design. Site plan options were developed and directly shaped the final plans for the Saddleback College and IVC campuses. This iterative process reflects a thorough consideration of alternatives meeting the district's future educational and physical needs. The 2011 FMP design concepts and facilities plans provide functional campus plans that are responsive to health and safety, land use planning, and environmental considerations. As indicated, informed decision-making and public participation have been guiding principles in FMP development and the design of the Saddleback College and IVC campuses. It is with this iterative stakeholder-driven design process in mind that the range of project alternatives warrants a limited scope under CEQA.

Further limiting the scope of reasonable alternatives is that all but two of the impacts identified in Chapter 3.0 as potentially significant are deemed to be less than significant with mitigation. The potentially significant effects that can be mitigated, and thus reduced to below a level of significance, are addressed through standard mitigation that is common to most project types in the campus vicinities. These effects would not be further reduced by any feasible alternative.

The two significant and unavoidable effects (see section 5.3 below) could only be reduced or avoided by approving campus build-out alternatives that cap enrollments and limit facilities expansion, and thus deviate from the project objectives.

5.2 PROJECT OBJECTIVES

The district's goal, as part of the California Community College system, is to offer academic and vocational education to students at the lower college division level. In addition, the district's goal is to advance California's economic growth and global competitiveness through education, training, and services that contribute to continuous workforce improvement. Projects to be funded and completed under the guidance of the 2011 FMPs must follow State-established criteria for capital outlay projects and address specific categories utilized for State evaluation and approval. As such, the State-defined criteria serve as FMP objectives, as follows:

- Provide for safe facilities and activate existing space
- Increase instructional capacity
- Modernize instructional space
- Promote a completed campus concept
- Increase institutional support services capacity
- Modernize institutional support services space

The FMPs serve as the outline for the district's Five-Year Construction Plan and the foundation of subsequent plans for the allocation of campus resources. Over the longer term, the FMPs are intended to be dynamic documents, subject to change based on future conditions that may affect the district's decisions and directions. Anticipating those future conditions, the FMPs evaluate existing land, infrastructure, facilities and systems in relationship to each college's educational purposes, plans and needs, specifying the capital outlay projects necessary to meet these needs. As they guide physical development of the campuses, the FMPs will:

- Establish clear development/modernization direction for the colleges by strategizing future growth relative to internal and external trends and influences that define the learning needs of the community.
- Provide a foundation for implementation strategies and serve as a primary resource for the development of other college planning activities.
- Inform the community of the colleges' present needs and future plans, forging a closer relationship between the colleges and the community.
- Serve as the basis for facility decisions regarding expansion and modification of facilities and the implementation of all funding measures provided to improve the colleges' facilities.
- Enable coordination between master plan development and ongoing facilities maintenance projects.
- Promote environmental stewardship in college planning and decision-making.

5.3 SUMMARY OF UNAVOIDABLE ADVERSE IMPACTS

The potentially significant environmental impacts associated with implementation of the FMPs were evaluated in Chapter 3 (*Environmental Analysis*). The analysis found that all potentially significant impacts could be mitigated to below a level of significance, with the exception of impacts to agricultural resources due to the loss of Prime Farmland at the IVC campus, and cumulatively significant traffic impacts near the Saddleback College campus. No other impacts were identified as unavoidable and adverse after mitigation.

The impact to agricultural resources is unavoidable because farmland located on the IVC campus has always been interim land use that is intended to be replaced by facilities that support the district's educational mission and goals. The land is properly designated and zoned for educational uses. Mitigation is not considered feasible due to zoning regulations in Orange County that encourage urban development on most remaining agricultural lands.

Cumulatively significant impacts at the Marguerite Parkway/Crown Valley Parkway intersection near Saddleback College are likely unavoidable due to the lack of planned improvements to the intersection, and the presence of physical constraints that would limit capacity increases at this location. The measures outlined in Section 3.2 (*Traffic and Circulation*) reduce project-related traffic impacts to the maximum extent feasible.

5.4 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

Alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid or substantially reduce any significant environmental effects (*CEQA Guidelines*, Section 15126.6[c]). Alternatives that are remote or speculative, or the effects of which cannot be reasonably predicted, also do not need to be considered (*CEQA Guidelines*, Section 15126[f][2]). The district considered several alternatives to reduce project impacts on agriculture resources and traffic (please refer to Sections 3.2 and 3.13 of this EIR for more information on these issue areas). Per CEQA, the lead agency may make an initial determination as to which alternatives are feasible and warrant further consideration and which are infeasible. The following alternatives were initially considered but were eliminated from further consideration in this EIR because the alternatives do not meet project objectives or were infeasible.

5.4.1 Development of a Fourth SOCCCD Campus

This alternative involves the creation of a fourth campus for the SOCCCD. The new campus could be a satellite facility serving Saddleback College or IVC, or an independent college. With implementation of this alternative, structures proposed in the Master Plans would instead be developed on the new campus. A total of 381,000 GSF would be developed on the fourth campus; new development on the Saddleback College and IVC campuses would be reduced by 224,000 GSF and 157,000 GSF respectively. This alternative is rejected because no site has been selected for a new campus, nor is there an identified source of funding for such a campus.

Educational facilities require specific development criteria to be met that are not readily available in standard office or commercial buildings, including, but not limited to higher parking ratios (i.e., more parking spaces per square foot of building space), compliance with more stringent seismic and building safety standards (e.g., Field Act) and specific classroom and laboratory space layout requirements. In addition, a new campus would need to be within the SOCCCD boundaries and would require separate administrative and support facilities that would increase the amount of square footage at the new campus to house these functions. Given the additional development standards associated with educational facilities and constrained area, identifying and securing existing building space that meet this criteria poses significant challenges. New buildings would also be an unlikely scenario given the increased development costs and environmental impacts for the additional square footage compared to the Proposed Project.

5.4.2 Cap Enrollments and Limit District-wide Growth to ATEP Campus

This alternative would cap enrollments at Saddleback College and IVC, and direct all future growth in the SOCCCD service area to the ATEP campus in Tustin. This alternative would eliminate the significant impact associated with the loss of agricultural resources on the IVC campus, as Prime Farmland on the campus would be preserved. This alternative would also eliminate the project contribution to the significant impact associated with increased traffic at the Marguerite Parkway/Crown Valley Parkway intersection, as there would be no additional contribution of the Saddleback College campus to deficiencies at the intersection. The following table quantifies the development implications of this alternative as compared to the Proposed Project.

Campus	Gross Square Feet of New Development		
	Proposed Project	"Limit Growth to ATEP Campus" Alternative	Change
Saddleback College	224,000	-0-	(224,000)
Irvine Valley College	157,000	-0-	(157,000)
ATEP	-0-*	381,000	381,000
<i>Total SOCCCD</i>	<i>381,000</i>	<i>381,000</i>	<i>No change</i>
*Does not include square footage previously reviewed and approved.			

This alternative would result in an increase of 381,000 GSF of development on the ATEP campus and decreases in planned development of 224,000 GSF and 157,000 GSF, respectively, on the Saddleback College and IVC campuses. This alternative is rejected because concentrating development on the ATEP campus would not effectively serve students throughout the SOCCCD service area, leaving southern portions of the service area particularly under-served. In addition, this

alternative would not accommodate future enrollment expectations at the Saddleback College or IVC campuses. Further, as described in Chapter 2.0 (*Project Description*), the LRP/LRAP for ATEP has programmed 893,851 square feet of classrooms, laboratories, administrative office space, incubator office space, and other education-oriented and ancillary support facilities, as well as a campus circulation system and other onsite improvements at the ATEP campus. The additional 381,000 GSF of educational space at ATEP and associated potential environmental impacts (e.g., traffic, air quality, noise, water usage, sewer demands, etc.) would be over and above the development and impacts assumed and analyzed in the MCAS Tustin Specific Plan FEIS/EIR, 2008 LRP/LRAP Addendum, and 2009 Phase 3A Addendum. The additional 381,000 GSF of development would require the City of Tustin's approval of an amendment to the MCAS Tustin Specific Plan and additional CEQA analysis, which are not considered at this time.

5.4.3 Cap IVC Enrollment and Limit Growth to Saddleback College Campus

To preserve approximately 11 acres of Prime Farmland and avoid a loss of agricultural resources on the IVC campus, this alternative would cap enrollment at IVC and relocate approximately 60,000 GSF of building space, currently programmed as a new Fine Arts Complex, to the Saddleback College campus. In order to completely avoid development of the agricultural area, this alternative would need to reassess and reconfigure campus-wide parking facilities, and eliminate a planned 31,000 SF renovation of the Performing Arts Yard, as well as the 130,000 SF Fine Arts Promenade landscaping/hardscaping project. The two new parking facilities planned for the agricultural area include a 650-space surface lot and 800-space parking structure to meet daily needs and to accommodate large group events that would take place at the athletic fields, new Gymnasium, and new Athletics Stadium. As designed, those proposed facilities would occupy about 7 acres; therefore, the IVC campus parking reconfiguration would be a major, and likely infeasible, undertaking given the remaining usable area available after preservation of the agricultural field.

The following table quantifies the development implications of this alternative as compared to the Proposed Project.

Campus	Gross Square Feet of New Development		
	Proposed Project	"Limit Growth to Saddleback College" Alternative	Change
Saddleback College	224,000	284,000*	60,000*
Irvine Valley College	157,000	97,000	(60,000)
<i>Total SOCCCD</i>	<i>381,000</i>	<i>381,000</i>	<i>No change</i>
*Does not account for site improvements (i.e., parking and walkways) necessary to accommodate increased building area.			

This alternative would result in an increase of 60,000 GSF of development on the Saddleback College campus over that included in the Proposed Project. Development would decrease by 60,000 GSF at the IVC campus. This alternative is rejected because increasing development on the Saddleback College campus would intensify already significant and unavoidable traffic impacts at the Marguerite Parkway/Crown Valley Parkway intersection. No feasible mitigation has been identified that would reduce impacts at this intersection to below a level of significance.

5.4.4 No Project/No Development

CEQA Guidelines §15126.6(e)(1) states *“the purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of not approving the proposed project.”* The No Project/No Development would involve no further development on the campuses beyond the projects already in construction. This alternative would necessarily require capping district-wide enrollments at their current levels. At the Saddleback College campus, this alternative would eliminate the project contribution to two significantly impacted intersections in Mission Viejo. However, those intersections would operate below acceptable levels of service in future years as a result of other cumulative traffic, with or without FMP buildout. At the IVC campus, this alternative would leave the existing Prime Farmland area in agricultural use.

Despite the impact reduction effects, this alternative would not meet any of the project objectives. An alternative that limits the campuses to existing and in-progress building area and site improvements would not implement programmed health and safety renovations, nor would it meet the projected need for new facilities to meet growing education demands. The 2011 FMPs also include extensive site improvements and infrastructure upgrades to meet environmental quality objectives related to transportation and circulation, water quality, stormwater management, energy efficiency, indoor/outdoor air quality, and health and safety. Without the FMPs, and by imposing development restrictions on the existing campuses, those objectives would not be met and numerous campus-specific and community benefits would be unrealized. The artificial set of assumptions under which this alternative would have to operate – namely, the operation of community colleges outside State mandates to provide instructional capacity – renders this alternative infeasible on legal, social and economic grounds. Therefore, it is rejected from further consideration.

5.5 DESCRIPTION OF ALTERNATIVES

5.5.1 No Project, Option 1– Implementation of the Approved 2006 FMPs

CEQA Guidelines §15126.6(e)(1) states *“the purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of not approving the proposed project.”* This no project alternative involves rejection of the 2011 FMPs and development of the Saddleback College and IVC campuses according to the facilities plans and timelines specified in the approved 2006 FMP. Without approval of the 2011 FMPs, the 2006 FMPs would by default be the guiding documents for building and site improvements on both campuses. Those building projects and site improvements included in the 2006 FMPs, but not yet approved by the Board of Trustees, would be allowed to proceed. This would result in a nominal long-term planned development reduction of 26,000 GSF on the Saddleback College campus and 52,000 GSF of planned development on the IVC campus. The planned development reductions are essentially the future facilities shortfalls that would result based on forecast enrollments.

5.5.2 No Project, Option 2 – Implementation of Projects in Progress

CEQA Guidelines §15126.6(e)(1) states *“the purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of not approving the proposed project.”* This alternative involves no new development on the campuses beyond those projects which are presently in progress. “In progress” is defined to include all projects which are under construction and approved for construction. This alternative would result in a nominal long-term planned development reduction of 26,000 GSF on the Saddleback College campus and 70,000 GSF of planned development on the IVC campus. The planned development reductions are essentially the future facilities shortfalls that would result based on forecast enrollments.

5.5.3 Alternative 1: All Proposed Development Moved to Irvine Valley College Campus

This alternative would reduce significant traffic impacts at Saddleback College by capping enrollment at that campus and shifting all proposed development to the IVC campus. A total of 381,000 GSF would be developed on the IVC campus. The following table quantifies the development implications of this alternative as compared to the Proposed Project.

Campus	Gross Square Feet of New Development		
	Proposed Project	Alternative 1 Project	Change
Saddleback College	224,000	-0-	(224,000)
Irvine Valley College	157,000	381,000*	224,000*
<i>Total SOCCCD</i>	<i>381,000</i>	<i>381,000</i>	<i>No change</i>
*Does not account for site improvements (i.e., parking and walkways) necessary to accommodate increased building area.			

This alternative would result in an increase of 224,000 GSF of development on the IVC campus over that included in the Proposed Project. Planned development would decrease by 224,000 GSF, on the Saddleback College campus. Although this would alleviate some growth-related impacts at Saddleback College, this alternative would preclude farmland preservation and could create significant traffic impacts at IVC, thus failing to meet the basic criterion for alternatives, which is to reduce or avoid significant environmental impacts.

5.5.4 Alternative 2: Preservation of Agriculture on Irvine Valley College Campus

This alternative reduces impacts to agricultural resources by preserving the approximately 11 acres of Prime Farmland present on the IVC campus. The same amount of new development as included in the Proposed Project (157,000 GSF) would be placed on the IVC campus, but the development would be increased in intensity through the addition of multi-story structures to allow the preservation of on-campus agricultural land. FMP structures that would require relocation with the implementation of this alternative include the Fine Arts Complex and a parking structure.

5.6 ANALYSIS OF ALTERNATIVES

Table 5-1 provides a comparative analysis of the Proposed Project and the four alternatives, which are referred to as follows in the matrix:

- No Project, Option 1 Implementation of the Approved 2006 FMPs
- No Project, Option 2 Implementation of Projects In Progress
- Alternative 1 All Proposed Development Moved to Irvine Valley College Campus
- Alternative 2 Preservation of Agriculture on Irvine Valley College Campus

TABLE 5-1
COMPARATIVE ENVIRONMENTAL ANALYSIS OF PROJECT ALTERNATIVES

Environmental Issue Area	Proposed Project	No Project, Option 1 <i>Implementation of 2006 FMPs</i>	No Project, Option 2 <i>Implementation of Projects in Progress</i>	Alternative 1 <i>All Development Moved to Irvine Valley College</i>	Alternative 2 <i>Preservation of Agriculture at Irvine Valley College</i>
Explanation of symbols: + indicates the alternative has a greater impact than the Proposed Project - indicates the alternative has a lower impact than the Proposed Project = indicates the alternative and the Proposed Project would have approximately equal impacts					
Aesthetics	Less than significant impact.	(=) No change from Proposed Project; no significant change to aesthetics.	(=) No change from Proposed Project; no significant change to aesthetics.	(=) No change from Proposed Project; no significant change to aesthetics.	(=) No change from Proposed Project; no significant change to aesthetics.
Agriculture & Forest Resources	Significant and unavoidable impact related to loss of Prime Farmland on IVC campus.	(=) No change from Proposed Project; IVC agriculture would be removed with implementation of the Fine Arts Complex before 2016.	(=) No change from Proposed Project; IVC agriculture would be removed with implementation of the Fine Arts Complex before 2016.	(=) No change from Proposed Project; IVC agriculture would be removed.	(-) Prime Farmland would be preserved on the IVC campus.
Air Quality	Less than significant impact with incorporation of mitigation for NO _x and PM _{2.5} emissions.	(-) Marginally reduces air quality impacts by reducing development on the campuses, thereby attracting fewer vehicles.	(-) Marginally reduces air quality impacts by reducing development on the campuses, thereby attracting fewer vehicles.	(=) No change from Proposed Project; air quality would be enhanced at the Saddleback College area, while IVC would see increased pollution. Increased potential for significant air quality impacts at IVC.	(+) Marginally increases air quality impacts by permitting the same amount of development, which would attract the same number of students, while also permitting farming with mechanized equipment to continue.

Environmental Issue Area	Proposed Project	No Project, Option 1 Implementation of 2006 FMPs	No Project, Option 2 Implementation of Projects in Progress	Alternative 1 All Development Moved to Irvine Valley College	Alternative 2 Preservation of Agriculture at Irvine Valley College
Explanation of symbols: + indicates the alternative has a greater impact than the Proposed Project - indicates the alternative has a lower impact than the Proposed Project = indicates the alternative and the Proposed Project would have approximately equal impacts					
Biological Resources	Less than significant impact with incorporation of mitigation for nesting birds and riparian habitats.	(=) No change from Proposed Project as similar impacts would occur, requiring the same mitigation measures.	(=) No change from Proposed Project as similar impacts would occur, requiring the same mitigation measures.	(-) Marginally reduces biological resource impacts at Saddleback College by limiting development activity adjacent to occupied coastal California gnatcatcher habitat; otherwise, campuses do not support protected species.	(-) Marginally reduces biological impacts by preserving farmland on the site, which could be used as foraging habitat by birds and other species.
Cultural Resources	Less than significant impact with incorporation of mitigation for paleontological resources.	(=) No change from Proposed Project; deep excavations, if necessary, could impact paleontological resources.	(-) Marginally reduces paleontological resource impacts by limiting development footprints and excavation requirements.	(-) Marginally reduces paleontological resource impacts at Saddleback College by limiting development footprints and excavation requirements; no change at IVC.	(-) Marginally reduces paleontological resource impacts by limiting development footprints and excavation requirements at IVC; no change at Saddleback College.
Geology & Soils	Less than significant impact.	(=) No change from Proposed Project; all development would apply the same Code requirements and building standards.	(=) No change from Proposed Project; all development would apply the same Code requirements and building standards.	(=) No change from Proposed Project; all development would apply the same Code requirements and building standards.	(=) No change from Proposed Project; all development would apply the same Code requirements and building standards.

Environmental Issue Area	Proposed Project	No Project, Option 1 Implementation of 2006 FMPs	No Project, Option 2 Implementation of Projects in Progress	Alternative 1 All Development Moved to Irvine Valley College	Alternative 2 Preservation of Agriculture at Irvine Valley College
Explanation of symbols: + indicates the alternative has a greater impact than the Proposed Project - indicates the alternative has a lower impact than the Proposed Project = indicates the alternative and the Proposed Project would have approximately equal impacts					
Greenhouse Gas Emissions	Less than significant impact.	(-) Marginally reduces greenhouse gas emissions by reducing development on the campuses.	(-) Marginally reduces greenhouse gas emissions by reducing development on the campuses.	(=) No change from Proposed Project; same amount of development resulting in similar greenhouse gas emissions.	(-) Marginally increases greenhouse gas emissions by permitting the same amount of development, which would attract the same number of students, while also permitting farming with mechanized equipment to continue.
Hazards & Hazardous Materials	Less than significant impact with incorporation of mitigation for toxic substances.	(=) No change from Proposed Project; few hazards or hazardous materials are present onsite, and mitigation is required to minimize potential toxic substances impacts.	(=) No change from Proposed Project; few hazards or hazardous materials are present onsite, and mitigation is required to minimize potential toxic substances impacts.	(=) No change from Proposed Project; few hazards or hazardous materials are present onsite, and mitigation is required to minimize potential toxic substances impacts.	(=) No change from Proposed Project; few hazards or hazardous materials are present onsite, and mitigation is required to minimize potential toxic substances impacts.
Hydrology & Water Quality	Less than significant impact.	(=) No change from Proposed Project; the same measures would be undertaken to prevent impacts to hydrology and water quality.	(=) No change from Proposed Project; the same measures would be undertaken to prevent impacts to hydrology and water quality.	(=) No change from Proposed Project; the same measures would be undertaken to prevent impacts to hydrology and water quality.	(-) Marginally reduces impacts by retaining farmland on the IVC campus, which has beneficial impacts on stormwater infiltration and runoff reduction.

Environmental Issue Area	Proposed Project	No Project, Option 1 Implementation of 2006 FMPs	No Project, Option 2 Implementation of Projects in Progress	Alternative 1 All Development Moved to Irvine Valley College	Alternative 2 Preservation of Agriculture at Irvine Valley College
Explanation of symbols: + indicates the alternative has a greater impact than the Proposed Project - indicates the alternative has a lower impact than the Proposed Project = indicates the alternative and the Proposed Project would have approximately equal impacts					
Land Use & Planning	Less than significant impact.	(=) No change from Proposed Project; the proposed land uses are consistent with local regulations, do not divide any communities, and are consistent with applicable biological plans.	(=) No change from Proposed Project; the proposed land uses are consistent with local regulations, do not divide any communities, and are consistent with applicable biological plans.	(=) No change from Proposed Project; the proposed land uses are consistent with local regulations, do not divide any communities, and are consistent with applicable biological plans.	(+) Agriculture as a long-term land use is inconsistent with the Irvine General Plan's Educational Facilities land use designation and the 6.1 (Institutional) zoning district; no other land use or planning policy conflicts would result.
Mineral Resources	No impact.	(=) No change from Proposed Project; no mineral resources would be impacted.	(=) No change from Proposed Project; no mineral resources would be impacted.	(=) No change from Proposed Project; no mineral resources would be impacted.	(=) No change from Proposed Project; no mineral resources would be impacted.
Noise	Less than significant impact with incorporation of mitigation for construction-period noise control.	(-) Marginally reduces noise by reducing development on the campuses, thereby attracting fewer people and vehicles.	(-) Marginally reduces noise by reducing development on the campuses, thereby attracting fewer people and vehicles.	(+) Noise levels would increase at the IVC campus due to increases in the intensity of development and added traffic.	(=) No change from Proposed Project; relocation of campus facilities on the IVC campus would not result in noticeable noise increases.
Population & Housing	No impact.	(=) No change from Proposed Project; no population increase	(=) No change from Proposed Project; no population increase	(=) No change from Proposed Project; no population increase	(=) No change from Proposed Project; no population increase

Environmental Issue Area	Proposed Project	No Project, Option 1 Implementation of 2006 FMPs	No Project, Option 2 Implementation of Projects in Progress	Alternative 1 All Development Moved to Irvine Valley College	Alternative 2 Preservation of Agriculture at Irvine Valley College
Explanation of symbols: + indicates the alternative has a greater impact than the Proposed Project - indicates the alternative has a lower impact than the Proposed Project = indicates the alternative and the Proposed Project would have approximately equal impacts					
		would be induced and no housing or people would be displaced.	would be induced and no housing or people would be displaced.	would be induced and no housing or people would be displaced.	would be induced and no housing or people would be displaced.
Public Services	Less than significant impact.	(-) Marginally reduces demand for public services by reducing development on the campuses, thereby attracting fewer people.	(-) Marginally reduces demand for public services by reducing development on the campuses, thereby attracting fewer people.	(=) No change from Proposed Project; standard conditions applied to project development would ensure adequate public services.	(=) No change from Proposed Project; standard conditions applied to project development would ensure adequate public services.
Recreation	Less than significant impact.	(=) No change from Proposed Project; no recreation facilities would be impacted.	(=) No change from Proposed Project; no recreation facilities would be impacted.	(=) No change from Proposed Project; no recreation facilities would be impacted.	(=) No change from Proposed Project; no recreation facilities would be impacted.
Transportation & Circulation	Significant and unavoidable cumulative impact related to traffic increases at the Marguerite Parkway/ Crown Valley Parkway intersection.	(-) Marginally reduces traffic impacts by reducing development on the campuses, thereby attracting fewer vehicles, but would not eliminate the significant intersection impacts at Saddleback College.	(-) Marginally reduces traffic impacts by reducing development on the campuses, thereby attracting fewer vehicles.	(+) Increased traffic impacts at IVC; traffic reduction at Saddleback College.	(=) No change from Proposed Project; the same amount of development would occur, resulting in the same traffic impacts.

Environmental Issue Area	Proposed Project	No Project, Option 1 Implementation of 2006 FMPs	No Project, Option 2 Implementation of Projects in Progress	Alternative 1 All Development Moved to Irvine Valley College	Alternative 2 Preservation of Agriculture at Irvine Valley College
Explanation of symbols: + indicates the alternative has a greater impact than the Proposed Project - indicates the alternative has a lower impact than the Proposed Project = indicates the alternative and the Proposed Project would have approximately equal impacts					
Utilities & Service Systems	Less than significant impact.	(-) Marginally reduces impacts on utilities by reducing development on the campuses.	(-) Marginally reduces impacts on utilities by reducing development on the campuses.	(=) No change from Proposed Project; demands on utilities would decrease at Saddleback College, but increase at IVC.	(+) No change in campus-related water demand, but net increase overall as a result of continued agricultural irrigation.

5.7 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Based on the analysis provided in Table 5-4, Alternative 2 (Preservation of Agriculture at Irvine Valley College) is determined to be the Environmentally Superior Alternative. This alternative would eliminate the significant and unavoidable impact resulting from the loss of Prime Farmland on the IVC campus, and would also marginally reduce impacts (which are already below a level of significance) related to cultural resources and hydrology and water quality. It is noted that this alternative would marginally increase impacts related to air quality, greenhouse gas emissions, and water use at the IVC campus.

Alternative 2 is not consistent with the district's mission, which is to offer academic and vocational education to students at the lower college division level. In addition, preservation of agriculture on the IVC campus fails to recognize that past FMPs for IVC, including the most recent 2006 FMP, have consistently planned for development on IVC's agricultural fields. Such fields have been recognized as solely an interim land use since the establishment of the college over 30 years ago. In addition, agriculture as a long-term or permanent land use is inconsistent with the purpose of the Irvine General Plan's Educational Facilities land use designation and the 6.1 (Institutional) zoning district. The Educational Facilities land use designation is intended to serve "public and private schools and support facilities from kindergarten through college/university levels," and the Institutional zoning district is designed to apply "to land for public and quasi-public facilities such as churches, schools or utilities."

6.0 GROWTH-INDUCING IMPACTS

CEQA Guidelines §15126.2(d) requires that an EIR:

“Discuss the 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. Included in this are projects which would remove obstacles to population growth.”

The analysis of growth inducement must also discuss ways in which the Proposed Project may encourage or facilitate other activities that may significantly affect the environment, individually or cumulatively. Direct growth-inducing impacts occur when a project might impose new burdens on a community or might induce new development in an area, triggering related growth-associated impacts. An example is the expansion of a wastewater treatment plant. Indirect growth inducement results from related multiplier effects whereby additional growth is induced by the demand for housing, goods, and services associated with a project.

The Proposed Project is the implementation of Facilities Master Plans, resulting in the expansion of existing community college campuses to serve existing and projected educational demands. It would not include the construction of new housing, generate increases to population, or provide an opportunity for substantial growth through the expansion of utility systems. Community colleges, by design and in compliance with statewide goals, primarily serve the higher educational needs of local communities, and do not attract substantial numbers of attendees from outside their respective service areas.

Additionally, the Proposed Project would not impose significant new burdens on adjacent land uses or induce substantial new unforeseeable development in the area. The surrounding land is already developed and the campuses would not be expanded in terms of its boundary or geographic location in the community. Proposed roadway improvements are limited to those which improve access to the campus, and do not significantly increase roadway capacity. Therefore, the Proposed Project would not directly induce growth in the region.

Other growth expected to be indirectly induced by the Proposed Project would be of an economic nature. Education opportunities could result in increased job opportunities for students and local residents, which would be an additional indirect beneficial economic growth inducement from the Proposed Project.

7.0 AGENCIES AND PERSONS CONSULTED

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- Gary Poertner, Chancellor
- Dr. Debra Fitzsimons, Vice Chancellor, Human Resources and Business Services
- Brandye K. D'Lena, Director, Facilities Planning and Purchasing

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Stantec (Traffic)

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