FINAL

TIERED INITIAL STUDY

&

MITIGATED NEGATIVE DECLARATION

Alumni Center

Project

University of California, Irvine
Office of Environmental Planning and Sustainability

August 25, 2011

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EXHIBITS

PROJECT INFORMATION

1. **Project title:**
   Alumni Center Project

2. **Lead agency name and address:**
   University of California, Irvine
   Office of Campus & Environmental Planning
   750 University Tower
   Irvine, CA 92697-2325

3. **Contact person and phone number:**
   Alex Marks, AICP, Associate Planner
   949.824.8692

4. **Project location:**
   As shown on Exhibit 1 (page 3), the University of California, Irvine is located in south-central Orange County, about five miles inland from the Pacific Ocean. The proposed project site is located at the southeastern corner or Mesa Road and Pereira Drive (Mesa Court Service Road), in the campus Academic Core, as shown on Exhibit 2 (page 5).

5. **Project sponsor's name and address:**
   University of California, Irvine
   Office of Campus & Environmental Planning
   750 University Tower
   Irvine, CA 92697-2325

6. **Custodian of the administrative record for this project (if different from response to item 3 above):**
   (See item 3)

7. **Identification of previous EIRs relied upon for tiering purposes (including all applicable LRDP and project EIRs) and address where a copy is available for inspection.)**
   UCI 2007 Long Range Development Plan (LRDP) Final Environmental Impact Report (FEIR) (State Clearinghouse No. 2006071024), certified by the Regents of the University of California, November 2007. This document, including all four volumes, is available for public inspection at the Office of Campus & Environmental Planning, 750 University Tower, Irvine, CA 92697-2325.

Source: UCI GIS

Exhibit 1
Regional Location Map

Source: Google Earth Images

Exhibit 2
UCI and Local Vicinity

PROJECT DESCRIPTION

1. Description of Project

The proposed project would construct an approximately 19,000 to 29,000 gross square foot (gsf) building on the University of California, Irvine (UCI) campus. The Alumni Center (Center) would provide approximately 11,400 to 18,000 assignable square feet (asf) of program activity space for the UCI Alumni Association (Association), currently housed in the Phineas Banning Alumni House (4,027 gsf/2,550 ASF) adjacent Pereira Drive on the campus. The proposed project would provide a larger facility for the Association to accommodate projected program growth.

The proposed Center is anticipated to include a 250-seat capacity conference space, staff offices, meeting rooms, workroom, a coffee/tea shop, and various support areas. The proposed building would also include an attached approximately 3,500 square foot exterior patio approximately at ground level. The Association currently employs a staff of nine although as the UCI alumni base grows the number of employees is anticipated to increase to approximately 20 individuals. The analysis contained in this document includes the entire 29,000 gsf /18,000 asf building program as well as the exterior patio. Upon completion of the new Center, space in the Phineas Banning Alumni House would revert to the campus for reassignment. The new building will be located on approximately 0.25 acre of land at the southeast corner of Mesa Road and Pereira Drive (Mesa Court Service Road), see Exhibit 2.

Project implementation will include site development and building construction. Site development would involve demolition of the existing landscaping and walkways where the building will be constructed, earthwork, and connection to campus utility and drainage systems, landscape improvements, construction of a small number of visitor and accessible parking spaces, and street and intersection improvements to local campus roadways. The exterior finish of the Center would be consistent with campus design standards and anticipated to include concrete, stone, or brick masonry and low-reflectance glass. Site lighting would include pole and building mounted lights consistent with UCI standards. The project would also include a visual/acoustic treatment, type and manner of construction as well as exact location to be determined during the Center's final design stage, between the Center and adjacent Mesa Court Residence halls to minimize any potential aesthetic and noise related affects. An approximately 0.75 acre area within Lot 14 across from the site on Pereira Drive would be provided for a construction lay-down yard. The project's proposed elements are depicted on Exhibit 3 (page 11) The design/build project team selected by the University to implement the project will develop a final project design consistent with this conceptual layout, which is subject to refinement during the design/build process, no refinements are anticipated that would affect the environmental analysis set forth in this Initial Study (IS).

Utility infrastructure sufficient to serve the proposed project is available in the site vicinity. Stormwater runoff from the proposed Center and its surrounding area would be collected on site and conveyed to existing storm drain facilities. In-line structural stormwater filtration or other Best Management Practices (BMPs) would be included in the project consistent with UCI's Stormwater Management Program in conformance with water quality control standards established in the countywide Drainage Area Master Plan. The project would not require an encroachment permit from the California Department of Transportation.

The Center would be implemented consistent with the University of California (UC) Policy on

Sustainable Practices and at a minimum designed to achieve a rating of LEED "Silver" from the US Green Building Council. The project would incorporate measures resulting in significant energy savings, construction waste reduction, recycled material use, and water conservation. Such features would include an overall energy efficiency that exceeds California Title 24 criteria by at least 20%. To achieve this goal, the project would include building features such as high-performance glazing, insulation and radiant barrier, high reflectance roofing materials, high efficiency natural gas water heaters, energy efficient lighting, Energy Control Systems, efficient exhaust fans, and high efficiency air conditioning equipment where applicable. Individual building component features will contribute to overall building annual energy savings, allowing the project to exceed the Code required minimum energy performance. Project elements that support alternative transportation would be integrated into the project design.

2. Project Objectives

- Accommodate projected growth of the UCI Alumni Association's operations and programs, which has grown to a base of approximately 120,000 graduates since the completion of the Phineas Banning Alumni House 25 years ago.
- Provide a site location and building design that reflects the centers function in serving the UCI alumni base.
- Create quality outdoor public space and retain, enhance, or frame important view corridors and visual connectivity through the project site.
- Continue UCI's sustainable development and energy conservation achievements.

3. Project Phasing/Construction Schedule

Construction of the project would commence in approximately September 2011 and be complete in approximately December 2012. The anticipated schedule includes an approximately 10 week grading phase, including demolition of existing site features, and a construction period of approximately 16 months. Construction of the Center would require the export of approximately 20,000 cubic yards of soil, which may be hauled off-site or stockpiled elsewhere on the campus within approximately 1.5 miles of the site, and approximately 2,000 cubic yards of grading. Pile driving is not anticipated to be required to construct the project. Prior to land clearing, grading, or similar activities occurring on the Center site, UCI would implement archaeological testing to evaluate whether potential resources exist within the site (refer to Section 4.b, Archaeological Resources for details)

4. Surrounding Land Uses and Environmental Setting

The project site is located within the UCI campus, which is located in central/coastal Orange County in the southern portion of the City of Irvine (see Figure 1, Regional Location Map). The project site is located in an urbanized portion of the campus, bordered to the southeast by the Mesa Court student residence hall complex, the northwest by Pereira Drive, southwest by Mesa Road. Land across from the site on the southwestern side of Pereira Drive is Parking Lot 14, which as noted previously would serve as the project's construction lay-down yard. University Drive is adjacent the parking lot's northwest edge and on the opposite side of University Drive is a regional bike path and San Diego Creek. The proposed site would be described as being in a primarily developed state and includes vehicle parking spaces, concrete walkways, lawns, and ornamental landscaping associated with the Mesa Court complex. There are various trees and shrubs present, mixed with the ornamental landscaping and lawn areas; however, no rock outcroppings, water bodies, riparian areas, or other distinctive natural features are present or adjacent the site. An aerial view of the site's boundaries and adjacent land uses is shown in Exhibit 4 (page 12). Ground level photographs of the project site and surroundings (taken in April 2010) are presented in

Exhibits 6-8 (pages 15-16); a map showing photo locations is provided as Exhibit 5 (page 13).

5. Consistency with the LRDP

The project site is located within UCI's Academic Core Sector, on a site designated in the 2007 Long Range Development Plan (LRDP) as *Student Housing*. In addition to accommodating student housing, other permitted uses within this campus land use designation include meeting space, recreation facilities, food service, and retail. Thus, as the Center will provide space for Alumni gatherings and meetings the project is in general conformance with this land use (2007 LRDP pages 61 and 67). Additionally, as the proposed project will provide space for the Association, constructing the proposed Center adjacent to one of UCI's student housing complex would be advantageous and provide great opportunity to positively affect relationships between current and past students.

6. Discretionary Approval Authority And Other Public Agencies Whose Approval Is Required (E.G., Permits, Financing Approval, Or Participation Agreement.)

University of California

As a public agency principally responsible for approving or carrying out the proposed project, the University of California is the Lead Agency under CEQA and is responsible for reviewing and certifying the adequacy of the environmental document and approving the proposed project. Pursuant to authority delegated from the Board of Regents of the University of California (The Regents), the UC Irvine Chancellor would consider approval of the proposed project in fiscal year 2011-12

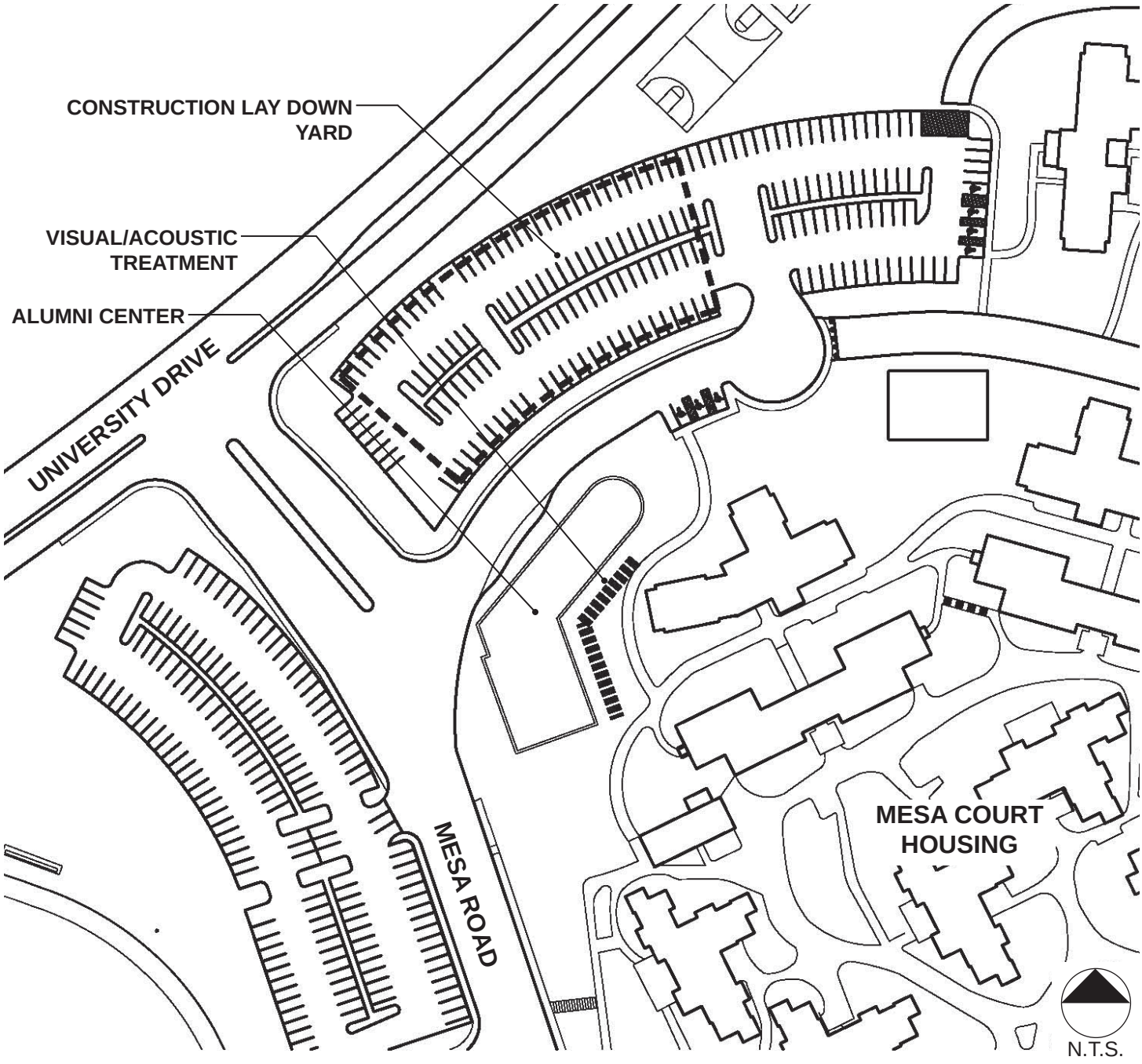

Exhibit 3
Proposed Project Elements

Note: As stated in the project description (page 6), this exhibit represents a conceptual layout plan of the project, which is subject to refinement during the design/build process.

Source: Google Earth Images

Exhibit 4
Adjacent Land Use

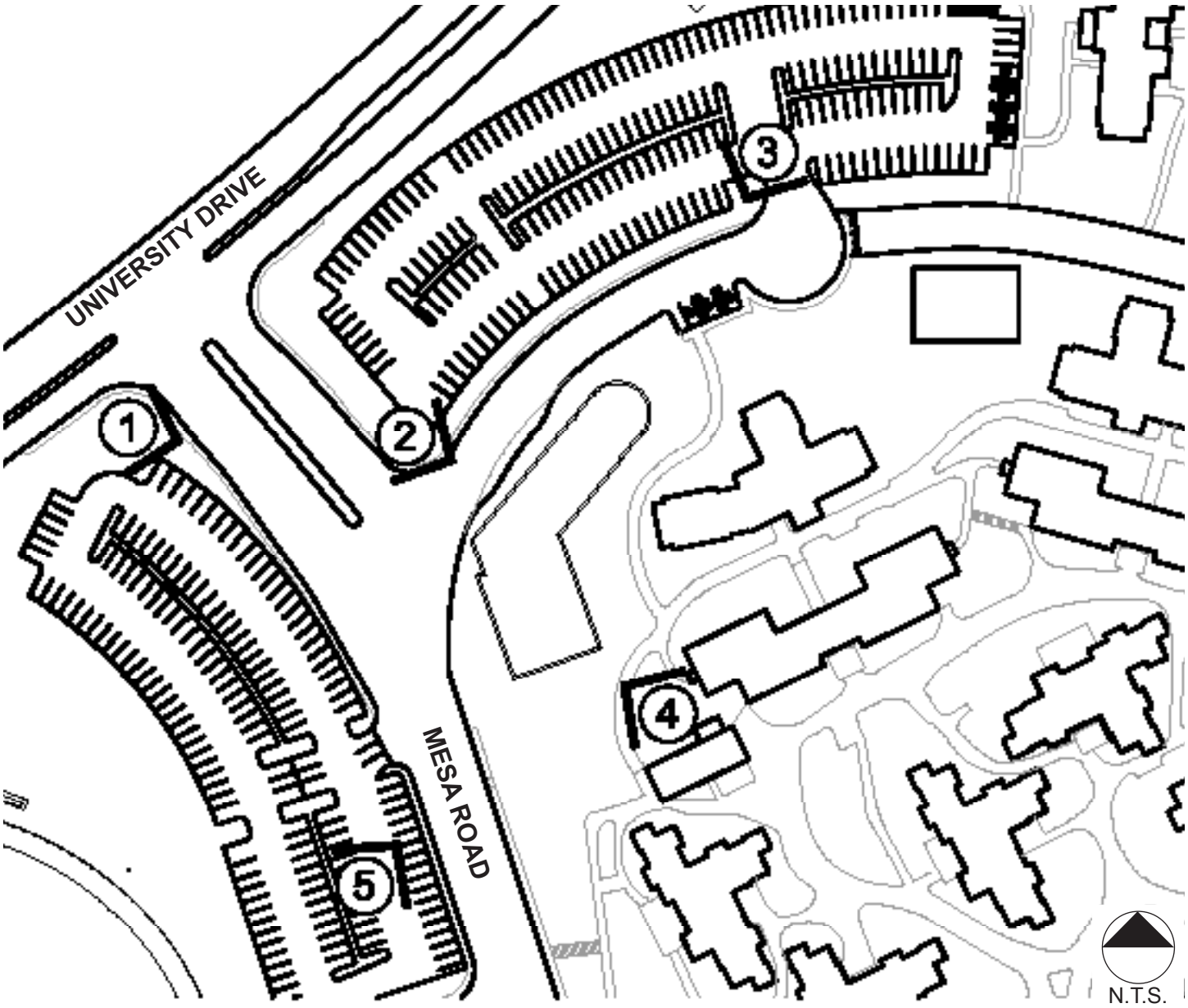

Exhibit 5
Site Photographs Location Key

1

View from corner of University Dr. and Mesa Rd. looking east/southeast
(Photo taken 4/19/11)

2

View from corner of Mesa Rd. and Pereira Dr. looking southeast
(Photo taken 4/19/11)

View from parking lot #14 entrance looking southwest
(Photo taken 4/19/11)

View from between Nubes and La Mirada buildings looking northwest
(Photo taken 4/19/11)

View from parking lot #14A looking northeast
(Photo taken on 4/19/11)

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

	Aesthetics		Air Quality		Biological Resources
	Cultural Resources		Geology/Soils		Greenhouse Gas Emissions
	Hazards/Hazardous Materials		Hydrology/Water Quality		Land Use/Planning
	Noise		Population/Housing		Public Services
	Recreation		Transportation/Traffic		Utilities/Service Systems
	Mandatory Findings of Significance				

DETERMINATION:
On the basis of the initial evaluation that follows:

	I find that the proposed project WOULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
✓	I find that although the proposed project could have a significant effect on the environment, the project impacts were adequately addressed in an earlier document or there will not be a significant effect in this case because revisions in the project have been made that will avoid or reduce any potential significant effects to a less than significant level. A MITIGATED NEGATIVE DECLARATION will be prepared.
	I find that the proposed project MAY have a significant effect on the environment. An ENVIRONMENTAL IMPACT REPORT will be prepared.

Signature

7-8-11
Date

Printed Name

For

EVALUATION OF ENVIRONMENTAL IMPACTS

The University has defined the column headings in the Initial Study checklist as follows:

(A) "Potentially Significant Impact" is appropriate if there is substantial evidence that the project's effect may be significant. If there are one or more "Potentially Significant Impacts" a Project EIR will be prepared.

(B) "Project Impact Adequately Addressed in LRDP EIR" applies where the potential impacts of the proposed project were adequately addressed in the LRDP EIR and mitigation measures identified in the LRDP EIR will mitigate any impacts of the proposed project to the extent feasible. All applicable LRDP EIR mitigation measures are incorporated into the project as proposed. The impact analysis in this document summarizes and cross-references (including section/page numbers) the relevant analysis in the LRDP EIR.

(C) "Less Than Significant With Project-level Mitigation Incorporated" applies where the incorporation of project specific mitigation measures will reduce an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." All project-level mitigation measures must be described, including a brief explanation of how the measures reduce the effect to a less than significant level.

(D) "Less Than Significant Impact" applies where the project will not result in any significant effects. The effects may or may not have been discussed in the LRDP Program EIR. The project impact is less than significant without the incorporation of LRDP or Project-level mitigation.

(E) "No Impact" applies where a project would not result in any impact in the category or the category does not apply. Information is provided to show that the impact does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer may be based on project specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project specific screening analysis).

1. AESTHETICS

Issues	(A) Potentially Significant Impact	(B) Project Impact Adequately Addressed in LRDP EIR	(C) Less Than Significant with Project-level Mitigation Incorporated	(D) Less Than Significant Impact	(E) No Impact
Would the project:					
a) Have a substantial adverse effect on a scenic vista?					✓
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?					✓
c) Substantially degrade the existing visual character or quality of the site and its surroundings?				✓	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?		✓			

1.a) Scenic Vistas: No Impact

Relevant Elements of Project:

As stated in the Project Description, the site for the new building is primarily in a developed state. The LRDP FEIR did not identify any scenic vistas on the campus (LRDP FEIR Vol I page 4.1-6); as such, no scenic vistas are located on or adjacent to the project site.

Discussion of Potential Project Impacts:

Since the LRDP FEIR did not identify any scenic vistas on the campus this project would have no impact on such resources.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:

None required

Significance Determination After LRDP EIR Mitigation Measures:

Not applicable

Additional Project-Level Mitigation Measures:

None required

Significance Determination after All Mitigation:

Not applicable

1.b) Scenic Resources Within A State Scenic Highway: No Impact

Relevant Elements of Project:

As stated above, the project site is developed. The IS for the 2007 LRDP indicated that development on

the campus, including the project site, would not substantially damage scenic resources such as trees, rock outcroppings, and historic buildings within a State scenic highway; therefore, the issue was not addressed in the LRDP FEIR (LRDP FEIR Vol I page 4.1-18). No changes have occurred to the campus or the project site with respect to scenic resources within a state scenic highway since the LRDP FEIR's certification.

Discussion of Potential Project Impacts:
As the LRDP FEIR did not identify any scenic resources within a state scenic highway on the campus and no changes have occurred to the campus or the project site with respect to scenic resources within a state scenic highway since its certification no impact on such resources would occur.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

1.c) Visual Character: Less Than Significant

Relevant Elements of Project:
As stated in the Project Description, the project site is located within the Academic Core sector, a developed portion of the UCI campus.

Discussion of Potential Project Impacts:
The LRDP FEIR determined that the Academic Core viewshed is completely developed with compatible land uses and implementation of the 2007 LRDP would not result in a significant impact to the visual quality of the Academic Core (LRDP FEIR Vol I page 4.1-7). Furthermore, as noted in the Project Description, a visual treatment would be placed between the proposed project and the adjacent student housing building, and the exterior of the proposed project would be consistent with campus design standards. The project would not degrade the existing visual character of the project site or its surroundings.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

1.d) Light or Glare: Project Impact Adequately Addressed in LRDP EIR

Relevant Elements of Project:

Current light and/or glare sources at the project site include those associated with the Mesa Court housing complex and adjacent street and parking lights. As described in the Project Description, project lighting and the Center's exterior finish would be consistent with campus design standards.

Discussion of Potential Project Impacts:

The LRDP FEIR concluded that implementation of the 2007 LRDP would result in the development of new structures that would have the potential to increase sources of light from exterior illumination and landscaped areas, and glare from the sun reflecting off reflective building surfaces (LRDP FEIR Vol I page 4.1-16). To reduce the project's glare and light impacts to a less than significant the project would comply with the restrictions set forth in LRDP FEIR Mitigation Measures (MM) Aes-2A and Aes-2B. Measure 2A requires the use of non-reflective materials for lighting fixtures, low-reflectance windows, other glazing, and exterior surfaces that could otherwise produce glare and would be enforced through project design specifications, which state that non-reflective glass must be used on all exterior surfaces, and that no reflective surfaces, treatments or coatings would be permitted. Measure Aes-2B requires pre-construction approval of an outdoor lighting plan for the project that includes lighting design, shielding, orientation, and intensity limitations to prevent light spillage off site and avoid off-site glare impacts. Compliance with these measures, as stated in the LRDP FEIR, would ensure that this project does not produce significant light or glare impacts (LRDP FEIR Vol I pages 4.1-16/17).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:

Aes-2A: Prior to project design approval for future projects that implement the 2007 LRDP, UCI shall ensure that the projects include design features to minimize glare impacts. These design features shall include use of non-reflective exterior surfaces and low-reflectance glass (e.g., double or triple glazing glass, high technology glass, low-E glass, or equivalent materials with low reflectivity) on all project surfaces that could produce glare.

Aes-2B: Prior to approval of construction documents for future projects that implement the 2007 LRDP, UCI shall approve an exterior lighting plan for each project. In accordance with UCI's Campus Standards and Design Criteria for outdoor lighting, the plan shall include, but not be limited to, the following design features:

i. Full-cutoff lighting fixtures to direct lighting to the specific location intended for illumination (e.g., roads, walkways, or recreation fields) and to minimize stray light spillover into adjacent residential areas, sensitive biological habitat, and other light sensitive receptors;

ii. Appropriate intensity of lighting to provide campus safety and security while minimizing light pollution and energy consumption; and

iii. Shielding of direct lighting within parking areas, parking structures, or roadways away from adjacent residential areas, sensitive biological habitat, and other light-sensitive receptors through site configuration, grading, lighting design, or barriers such as earthen berms, walls, or landscaping

Significance Determination After LRDP EIR Mitigation Measures:

Less than significant

Additional Project-Level Mitigation Measures:

None required

Significance Determination after All Mitigation:
Less than significant

2. AIR QUALITY

Issues	(A) Potentially Significant Impact	(B) Project Impact Adequately Addressed in LRDP EIR	(C) Less Than Significant with Project-level Mitigation Incorporated	(D) Less Than Significant Impact	(E) No Impact
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:					
a) Conflict with or obstruct implementation of the applicable air quality plan?		✓			
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		✓			
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?		✓			
d) Expose sensitive receptors to substantial pollutant concentrations?				✓	
e) Create objectionable odors affecting a substantial number of people?					✓

2.a) AQMP Consistency: Project Impact Adequately Addressed in LRDP EIR

Relevant Elements of Project:

The proposed Center and the entire UCI campus are located in the South Coast Air Basin (SCAB), a region covering Los Angeles, Orange, San Bernardino and western Riverside Counties. Air quality in the SCAB is governed by a regional air quality management plan (AQMP), based on population projections developed by the Department of Finance (DOF) for California on a county-by-county basis, which is administered by the South Coast Air Quality Management District (SCAQMD) to achieve compliance with state and national air quality standards. The Southern California Association of Governments (SCAG) uses the projections to determine regional growth and related vehicular transportation patterns. The SCAQMD bases its predictions of future criteria pollutants, including mobile and area source emissions on these population projections. Likewise, UCI's long term enrollment planning is based on population growth projections from DOF. As a result, the 2007 AQMP accounts for future growth within the Educational Services Sector (Sector 82) at the county level, which includes all educational facilities within Orange County (LRDP FEIR Vol I page 4.2-11). As stated in the Project Description, the proposed Center would provide space for staff and functions currently housed elsewhere on the campus and accommodate projected program growth.

Discussion of Potential Project Impacts:
Because the AQMP is based on population growth projections and the 2007 LRDP is consistent with SCAG projections for regional growth, implementation of the 2007 LRDP was found to not conflict with, or obstruct implementation of the AQMP (LRDP FEIR Vol I page 4.2-11). As the proposed project is consistent with the LRDP, it would thus not conflict with implementation of the 2007 AQMP.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

2.b) Air Quality Standards: Project Impact Adequately Addressed in LRDP EIR

Relevant Elements of Project:
The LRDP FEIR states that construction activities associated with implementation of the LRDP, including those associated with the proposed project, would result in temporary increases in air pollutant emissions generated in the form of fugitive dust (PM10 and PM2.5) and exhaust (NOx, SOx, CO, VOC, PM10, and PM2.5) (LRDP FEIR Vol I page 4.2-12) emissions. As noted in the Project Description, the anticipated construction schedule includes an approximately 10 week grading phase (including demolition of existing site features) and a construction period of approximately 16 months.

Discussion of Potential Project Impacts:
The LRDP FEIR concluded that although construction on the campus would result in temporary adverse impacts to the ambient air quality, actual project related emissions may be lower and impacts would be short term and dependent on construction schedules and level of activity on a maximum daily basis (LRDP FEIR Vol I page 4.2-14). The operational impacts associated with the 2007 LRDP would involve incremental emissions of air pollutants (NOx, VOC, CO, SOx, PM10, and PM2.5) resulting from three emission source categories: area, stationary, and vehicular sources (LRDP FEIR Vol I page 4.2-15).

Consistent with LRDP FEIR MM Air-2A, an air quality assessment (see Appendix A) was prepared in conjunction with this environmental review to assess the project's anticipated construction and operation related emissions. The assessment was prepared utilizing software recommended by the California Air Resources Board (URBEMIS 2007 v. 9.2.4) and assumed implementation of construction control measures specified in LRDP FEIR MM Air-2B, which provide significant reductions in emission levels compared to levels without such measures (LRDP FEIR Vol I pages 4.12-18 to 20) and SCAQMD Rule 403 regarding site watering. The air quality assessment concluded that construction of the project, with implementation of Rule 403 and LRDP FEIR MM Air-2B, would not result in any significant short term construction related impacts and no project specific mitigation measures are required (Appendix A page 35). The air quality assessment also modeled emissions associated with the project's anticipated long-term operations. Results of this modeling determined that the operation of the project would not result in any significant long-term air quality impacts (Appendix A page 33).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:

Air-2A: During project level environmental review of future projects that implement the 2007 LRDP and that could result in a significant air quality impact from construction emissions, UCI shall retain a qualified air quality specialist to prepare an air quality assessment of the anticipated project-related construction emissions. The assessment shall quantify the project's estimated construction emissions with and without implementation of applicable Best Management Practices (BMPs) listed in mitigation measure Air-2B and compare them with established SCAQMD significance thresholds. In addition, the air quality assessment shall include analysis of temporal phasing as a means of reducing construction emissions.

If the estimated construction emissions are under SCAQMD's significance thresholds or if mitigation measure Air-2B would reduce emissions to below established thresholds, then the project's direct impact to air quality would be less than significant and no additional mitigation would be required. If the project's construction emissions would exceed established thresholds with implementation of applicable BMPs listed in mitigation measure Air-2B, and no additional mitigation to reduce the emissions below the threshold is feasible, then the project's direct impact to air quality would remain significant following mitigation.

Air-2B: Prior to initiating on-site construction for future projects that implement the 2007 LRDP, UCI shall ensure that the project construction contract includes a construction emissions mitigation plan, including measures compliant with SCAQMD Rule 403 (Fugitive Dust), to be implemented and supervised by the on-site construction supervisor, which shall include, but not be limited to, the following BMPs:

i. During grading and site preparation activities, exposed soil areas shall be stabilized via frequent watering, non-toxic chemical stabilization, or equivalent measures at a rate to be determined by the on-site construction supervisor.
ii. During windy days when fugitive dust can be observed leaving the construction site, additional applications of water shall be required at a rate to be determined by the onsite construction supervisor.
iii. Disturbed areas designated for landscaping shall be prepared as soon as possible after completion of construction activities.
iv. Areas of the construction site that will remain inactive for three months or longer following clearing, grubbing and/or grading shall receive appropriate BMP treatments (e.g., revegetation, mulching, covering with tarps, etc.) to prevent fugitive dust generation.
v. All exposed soil or material stockpiles that will not be used within 3 days shall be enclosed, covered, or watered twice daily, or shall be stabilized with approved nontoxic chemical soil binders at a rate to be determined by the on-site construction supervisor.
vi. Unpaved access roads shall be stabilized via frequent watering, non-toxic chemical stabilization, temporary paving, or equivalent measures at a rate to be determined by the on-site construction supervisor.
vii. Trucks transporting materials to and from the site shall allow for at least two feet of freeboard (i.e., minimum vertical distance between the top of the load and the top of the trailer). Alternatively, trucks transporting materials shall be covered.
viii. Speed limit signs at 15 mph or less shall be installed on all unpaved roads within construction sites.

ix. Where visible soil material is tracked onto adjacent public paved roads, the paved roads shall be swept and debris shall be returned to the construction site or transported off site for disposal.

x. Wheel washers, dirt knock-off grates/mats, or equivalent measures shall be installed within the construction site where vehicles exit unpaved roads onto paved roads.

xi. Diesel powered construction equipment shall be maintained in accordance with manufacturer's requirements, and shall be retrofitted with diesel particulate filters where available and practicable.

xii. Heavy duty diesel trucks and gasoline-powered equipment shall be turned off if idling is anticipated to last for more than 5 minutes.

xiii. Where feasible, the construction contractor shall use alternatively fueled construction equipment, such as electric or natural gas-powered equipment or biofuel.

xiv. Heavy construction equipment shall use low NOx diesel fuel to the extent that it is readily available at the time of construction.

xv. To the extent feasible, construction activities shall rely on the campus's existing electricity infrastructure rather than electrical generators powered by internal combustion engines.

xvi The construction contractor shall develop a construction traffic management plan that includes the following:
- Scheduling heavy-duty truck deliveries to avoid peak traffic periods
- Consolidating truck deliveries

xvii. Where possible, the construction contractor shall provide a lunch shuttle or on-site lunch service for construction workers.

xviii. The construction contractor shall, to the extent possible, use pre-coated architectural materials that do not require painting. Water-based or low VOC coatings shall be used that are compliant with SCAQMD Rule 1113. Spray equipment with high transfer efficiency, such as the high volume-low pressure spray method, or manual coatings application shall be used to reduce VOC emissions to the extent possible.

xix. Project constructions plans and specifications will include a requirement to define and implement a work program that would limit the emissions of reactive organic gases (ROG's) during the application of architectural coatings to the extent necessary to keep total daily ROG's for each project to below 75 pounds per day, or the current SCAQMD threshold, throughout that period of construction activity to the extent feasible. The specific program may include any combination of restrictions on the types of paints and coatings, application methods, and the amount of surface area coated as determined by the contractor.

xx. The construction contractor shall maintain signage along the construction perimeter with the name and telephone number of the individual in charge of implementing the construction emissions mitigation plan, and with the telephone number of the SCAQMD's complaint line. The contractor's representative shall maintain a log of any public complaints and corrective actions taken to resolve complaints.

Significance Determination After LRDP EIR Mitigation Measures:
Less than Significant

Additional Project-Level Mitigation Measures:
None Required

Significance Determination after All Mitigation:
Less than Significant

2.c) Cumulatively Considerable Net Increase of Any Criteria Pollutant: Project Impact Adequately Addressed in LRDP EIR

Relevant Elements of Project:
The 2007 LRDP FEIR identified six criteria air pollutants pertinent to the EIR's analysis: ozone (O_3), carbon monoxide (CO), Nitrogen Oxide (NO_2), Sulfur Dioxide (SO_2), and Particulate Matter 10 (PM_{10},) and 2.5 ($PM_{2.5}$). As noted in the air quality assessment prepared for the project, the air basin in which UCI is located, including the project site, is currently in non-attainment status with respect to California and federal standards for O_3, PM_{10}, and $PM_{2.5}$ (Appendix A page 9). The 2007 LRDP FEIR determined that implementation of future LRDP projects that contribute to these nonattainment pollutant emissions in excess of SCAQMD thresholds would be cumulatively considerable (LRDP FEIR Vol I page 4.2-28).

Discussion of Potential Project Impacts:
The 2007 LRDP FEIR concluded that because the South Coast Air Basin is in nonattainment for O_3, PM_{10}, and $PM_{2.5}$ implementation of future LRDP projects that exceed the SCAQMD thresholds for these pollutants would result in a cumulatively considerable contribution to this significant air quality impact (LRDP FEIR Vol I page 4.2-28). The air quality assessment prepared for the project determined that with the implementation of LRDP FEIR MMs Air-2A and 2B, which the LRDP FEIR determined would reduce the LRDP's cumulatively considerable contribution to these impacts to the extent feasible, the proposed Center would not exceed the SCAQMD's thresholds for the criteria pollutants listed above (Appendix B page 33, LRDP FEIR Vol I page 4.2-28). Therefore, the proposed Center would not result in cumulatively considerable impacts related to a net increase of any criteria pollutant.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
Air-2A and Air-2B, included in the response to item 2.b

Significance Determination After LRDP EIR Mitigation Measures:
Less than Significant

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Less than Significant

2.d) Sensitive Receptors: Less Than Significant

Relevant Elements of Project:
A health risk assessment (HRA) was prepared for the LRDP FEIR to identify risks associated with increased development anticipated to occur under the 2007 LRDP, including the proposed project. The HRA included toxic air contaminant emissions associated with laboratory operations, cogeneration operations, natural gas and diesel operation of medium and large boilers, gasoline storage and recovery, and diesel-fueled emergency engines and generators. Additionally, the LRDP FEIR included an analysis of carbon monoxide impacts associated with vehicular traffic (LRDP FEIR Vol I pages 4.2-21 to 26).

Discussion of Potential Project Impacts:
As stated in response to Issue 2.a, the project would not result in construction or operational related air

quality related impacts. The LRDP FEIR determined that implementation of the 2007 LRDP would not expose sensitive receptors to carcinogenic, non-carcinogenic, and localized carbon monoxide pollutant concentrations in excess of regulatory standards. Thus, no mitigation measures are required (LRDP FEIR Vol I page 4.2-26).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

2.e) Objectionable Odors: No Impact

Relevant Elements of Project:
Once inhabited the proposed project would not create any unusual or objectionable odors. The LRDP FEIR identifies that odors on the campus would be generated from vehicles and/or tailpipe exhaust emissions during construction and operational phases of the 2007 LRDP (LRDP FEIR Vol I page 4.2-26).

Discussion of Potential Project Impacts:
The LRDP FEIR stated that the UCI campus is not considered a land use that would generate significant odor impacts and that any odors generated would be temporary in nature and concluded that implementation of the 2007 LRDP, including the project, would not create objectionable odors affecting a substantial number of people (LRDP FEIR Vol I pages 4.2-26/27).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

3. BIOLOGICAL RESOURCES

Issues	(A) Potentially Significant Impact	(B) Project Impact Adequately Addressed in LRDP EIR	(C) Less Than Significant with Project-level Mitigation Incorporated	(D) Less Than Significant Impact	(E) No Impact
Would the project:					
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CA Department of Fish and Game or U.S. Fish and Wildlife Service?					✓
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?					✓
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?					✓
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?					✓
e) Conflict with any applicable policies protecting biological resources?					✓
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan?					✓

3.a) Species Impacts: No Impact

Relevant Elements of Project:

As noted in the Project Description, the project site is located in UCI's Academic Core planning sector, an urbanized area of the campus. The site is neither adjacent the UCI Natural Communities Conservation Program (NCCP) Reserve or the UCI San Joaquin Marsh Natural Reserve.

Discussion of Potential Project Impacts:
In order to estimate direct impacts, areas anticipated for development under the 2007 LRDP were compared to mapped biological resources, as shown in Figures 4.3-2A through 4.3-2D in the LRDP FEIR. The figures do not depict developed areas of the campus, including the project site, as it was determined that growth in such area would not result in direct biological resource impacts (LRDP FEIR VI page 4.3-35). The project would comply with applicable federal and state regulations pertaining to construction during the nesting season; therefore, no impacts would occur to nesting birds.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
Not required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

3.b) Riparian Habitat or Other Sensitive Natural Community: No Impact

Relevant Elements of Project:
As stated in the Project Description, the project site is in a primarily developed state and neither contains nor is adjacent to sensitive natural communities or riparian habitats.

Discussion of Potential Project Impacts:
As construction of the proposed project would not affect a sensitive natural community or riparian habitat there would be no impacts.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None Required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

3.c) Federally Protected Wetlands: No Impact

Relevant Elements of Project:
As stated in the Project Description, the project site is in a primarily developed state. No federally protected wetlands are located on the site.

Discussion of Potential Project Impacts:
As no federally protected wetlands occur on the project site, a jurisdictional delineation as described in

the LRDP FEIR (LRDP FEIR Vol I page 4.3-46) is not required and construction of the project would have no impact.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None Required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

3.d) Wildlife Corridors: No Impact

Relevant Elements of Project:
As stated in the Project Description, the project site is already in a primarily developed state and is located between a student housing complex, a roadway, and surface parking lots. The 2007 LRDP FEIR determined that because the campus is bordered by the SR-73 toll road to the west and mixed use and residential areas to the north, east, and south, there are limited wildlife movement corridors in the campus vicinity. (LRDP FEIR Vol I page 4.3-48).

Discussion of Potential Project Impacts:
Implementation of the 2007 LRDP was determined to not interfere with wildlife corridors or impede movement by native species (LRDP FEIR Vol I 4.3-48). Therefore, the project would have no impacts on wildlife corridors, nursery sites, or migratory fish resources.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

3.e) Conflict with Applicable Policies: No Impact

Relevant Elements of Project:
There are no LRDP, State, or federal policies, which apply to the project site for protection of biological resources.

Discussion of Potential Project Impacts:
There would be no conflict with any biological protection policies, because none applies to this part of the campus.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

3.f) Conflict with an Applicable Habitat Plan: No Impact

Relevant Elements of Project:
The UCI Academic Core, in which as noted in the Project Description the project would be located, is not located within a Habitat Conservation Plan, Natural Community Conservation Plan, or any other habitat conservation plan.

Discussion of Potential Project Impacts:
There would be no conflict with any biological protection policies, because none applies to this part of the campus.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

4. CULTURAL RESOURCES

Issues	(A) Potentially Significant Impact	(B) Project Impact Adequately Addressed in LRDP EIR	(C) Less Than Significant with Project-level Mitigation Incorporated	(D) Less Than Significant Impact	(E) No Impact
Would the project:					
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?					✓
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		✓			
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		✓			
d) Disturb any human remains, including those interred outside of formal cemeteries?				✓	

4.a) Historical Resources: No Impact

Relevant Elements of Project:

Cultural resources investigations conducted for previous LRDPs and for the 2007 LRDP FEIR did not find any historical resources on or adjacent to the project site. A comprehensive Historic Resources Assessment was performed at UCI in 1989, which identified five areas of potential historical significance (LRDP FEIR Vol I page 4.4-5). Only one of the five, the UCI Ranch Building Complex, located more than a mile away from the project site, was determined to have historical significance.

Discussion of Potential Project Impacts:

No historical resources exist on or adjacent to the project site; therefore, this project would not result in impacts to historical resources.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:

None required

Significance Determination After LRDP EIR Mitigation Measures:

Not Applicable

Additional Project-Level Mitigation Measures:

None required

Significance Determination after All Mitigation:

Not Applicable

4.b) Archaeological Resources: Project Impact Adequately Addressed in LRDP EIR.

Relevant Elements of Project:

A comprehensive archaeological report for the UCI campus was conducted in 1988, which cataloged the location, condition, and resource potential of all archeological sites on campus. Table 4.4-1 in the 2007 LRDP FEIR provides a summary of the prehistoric resources located within the UCI campus based upon the 1988 study (LRDP FEIR Vol I page 4.4-13). Based upon the 1988 study, a portion of resource CA-ORA-118B may be located within the proposed building site. As indicated in Table 4.1-1, although disrupted by the development of Mesa Court, additional resources may remain intact within CA-ORA-118B. The LRDP FEIR indicated that impacts would be considered significant for recorded resources that have been determined to be significant, including site CA-ORA-118-B, and provides a mitigation program to address impacts to significant recorded and unrecorded archaeological resources. Thus, as directed by LRDP FEIR mitigation measure Cul-1A, a qualified archaeologist was retained to define and survey the area potential affects (APE) on the proposed Center site and conduct an initial assessment of site CA-ORA-118-B's potential significance. The archaeologist's assessment is provided as Appendix B.

Discussion of Potential Project Impacts:

As noted in Appendix B, the archaeologist's initial assessment to determine the potential significance of CA-ORA-118-B included researching archives and records of prior investigations, and a field visit to review past modifications and identify the APE. During their field visit the archaeologists identified an APE of approximately 36 by 42 meters and upon examination of the ground's surface for indications of prehistoric resources found several fragments of abalone, chione, and pectin shellfish. According to the letter report no other indications of prehistoric use were found. Based upon the archival research and site visit conducted, the archaeologist concluded that a portion of CA-ORA-118B may exist within the proposed Center site. As recommended in their report, prior to land clearing, grading, or similar activities occurring on the project site UCI would implement additional testing to further evaluate the resources within the APE to determine if this portion of CA-ORA-118B retains its integrity and could be a significant resource. The methodology for this additional testing is detailed in the archaeologist's letter report. At the conclusion of this testing, per Cul-1A, if an archaeological resource discovered within the APE is determined to be significant UCI would implement a data recovery plan as required by Cul-1B. The LRDP FEIR determined that for all applicable projects under the 2007 LRDP that would impact recorded archaeological sites, implementation of LRDP FEIR mitigation measures Cul-1A and Cul-1B would reduce impacts to a level considered less than significant for all resources determined upon testing to be significant (LRDP FEIR Vol I pages 4.4-13-14).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:

Cul-1A During preparation of the Initial Study for future projects that implement the 2007 LRDP and are located on sites containing recorded archaeological resources, UCI shall retain a qualified archaeologist to define and survey the area of potential effects (APE) on the project site. The APE shall be based on the extent of ground disturbance and site modification anticipated for the project including an appropriate buffer where specific project boundaries have yet to be established.

During the course of project planning, any recorded archaeological sites within the project APE shall be avoided to the extent feasible. If such sites cannot be avoided through project modifications or redesign, then the archeologist shall evaluate all archaeological resources

observed within the project APE for significance in accordance with CEQA Guidelines Section 15064.5(c). This evaluation shall also determine the extent of the archaeological resource, if not already established. If an archaeological resource within the project APE is determined to be significant, then mitigation measure Cul-1B shall be implemented.

Cul-1B Prior to land clearing, grading, or similar land development activities for future projects that implement the 2007 LRDP and would impact a significant archaeological resource as determined by mitigation measure Cul-1A, a qualified archaeologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures:

i. Perform appropriate technical analyses;
ii. File any resulting reports with the South Coastal Information Center; and
iii. Provide the recovered materials to an appropriate repository for curation.

Cul-1C Prior to land clearing, grading, or similar land development activities for future projects that implement the 2007 LRDP in areas of identified archaeological sensitivity, UCI shall retain a qualified archaeologist (and, if necessary, a culturally-affiliated Native American) to monitor these activities. In the event of an unexpected archeological discovery during grading, the on-site construction supervisor shall redirect work away from the location of the archaeological find. A qualified archaeologist shall oversee the evaluation and recovery of archaeological resources, in accordance with the procedures listed below, after which the on-site construction supervisor shall be notified and shall direct work to continue in the location of the archaeological find. A record of monitoring activity shall be submitted to UCI each month and at the end of monitoring. If an archaeological discovery is determined to be significant, the archaeologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures:

i. Perform appropriate technical analyses;
ii. File any resulting reports with South Coastal Information Center; and
iii. Provide the recovered materials to an appropriate repository for curation, in consultation with a culturally-affiliated Native American.

Significance Determination After LRDP EIR Mitigation Measures:
Less than significant

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Less than significant

4.c) Paleontological Resources: Project Impact Adequately Addressed in LRDP EIR.

Relevant Elements of Project:
Paleontological investigations conducted for UCI in 1988 determined that the Topanga Formation geologic units under the campus are considered to be of high paleontological sensitivity for vertebrate and invertebrate fossils. As depicted on LRDP FEIR Figure 4.4-1, the project site, although developed is located within an area of the campus considered regionally to be of high sensitivity for vertebrate and invertebrate fossils (LRDP FEIR Vol I pages 4.4-19-21).

Discussion of Potential Project Impacts:
According to the 2007 LRDP FEIR, development that occurs from implementation of the 2007 LRDP, including the proposed project, which involves earthwork, would have a significant impact on paleontological resources. These impacts would be reduced however to a less than significant level through the project's implementation of LRDP FIER MMs Cul-4A-C (LRDP FEIR Vol I pages 4.4-19/20).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:

Cul-4A Prior to grading or excavation for future projects that implement the 2007 LRDP and would excavate sedimentary rock material other than topsoil, UCI shall retain a qualified paleontologist to monitor these activities. In the event fossils are discovered during grading, the on-site construction supervisor shall be notified and shall redirect work away from the location of the discovery. The recommendations of the paleontologist shall be implemented with respect to the evaluation and recovery of fossils, in accordance with mitigation measures Cul-4B and Cul-4C, after which the on-site construction supervisor shall be notified and shall direct work to continue in the location of the fossil discovery. A record of monitoring activity shall be submitted to UCI each month and at the end of monitoring.

Cul-4B If the fossils are determined to be significant, then mitigation measure Cul-4C shall be implemented.

Cul-4C For significant fossils as determined by mitigation measure Cul-4B, the paleontologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures:

a. The paleontologist shall ensure that all significant fossils collected are cleaned, identified, catalogued, and permanently curated with an appropriate institution with a research interest in the materials (which may include UCI);
b. The paleontologist shall ensure that specialty studies are completed, as appropriate, for any significant fossil collected; and
c. The paleontologist shall ensure that curation of fossils are completed in consultation with UCI. A letter of acceptance from the curation institution shall be submitted to UCI.

Significance Determination After LRDP EIR Mitigation Measures:
Less than significant

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Less than significant

4.d) Human Remains: Less Than Significant Impact

Relevant Elements of Project:
Although the project site is primarily already developed, because human remains are often found buried beneath the ground surface there is a possibility that remains could occur somewhere on site and be

uncovered during the project's earthmoving activities (LRDP FEIR Vol I page 4.4-18).

Discussion of Potential Project Impacts:
If human remains were discovered during construction the contractor would be required to notify the County Coroner, in accordance with section 7.50.5 of the California Health and Safety Code, who must then determine whether the remains are of forensic interest. If the Coroner, with the aid of a supervising archeologist, determines that, the remains are or appear to be of a Native American, he/she would contact the Native American Heritage Commission for further investigations and proper recovery of such remains. Additionally, as noted in the 2007 LRDP FEIR if human remains are disturbed during grading or excavation UCI will comply with CEQA Guidelines Section 15064.5(e). The 2007 LRDP FEIR concluded that in the event human remains are disturbed impacts would be less than significant with existing state law compliance.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

5. GEOLOGY AND SOILS

Issues	(A) Potentially Significant Impact	(B) Project Impact Adequately Addressed in LRDP EIR	(C) Less Than Significant with Project-level Mitigation Incorporated	(D) Less Than Significant Impact	(E) No Impact
Would the project:					
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				✓	

ii) Strong seismic ground shaking?				✓	
iii) Seismic-related ground failure, including liquefaction?				✓	
iv) Landslides				✓	
b) Result in substantial soil erosion or the loss of topsoil?				✓	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				✓	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				✓	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?					✓

5.a) i-iv: Fault Rupture, Shaking, Liquefaction, Landslides: Less Than Significant Impact

Relevant Elements of Project:

UCI, like most of southern California, is located in a seismically active area where strong ground shaking could occur during movements along any of several faults in the region. Although, no active or potentially active faults occur on the campus according to the State Alquist-Priolo Earthquake Fault Zoning Act program, a ground surface rupture is possible along the UCI Campus Fault, which extends from beyond the southeast region of the campus northwest through the campus center to University Drive, and is classified as a potentially active fault. The proposed Center would be located outside of the 50 foot Restricted Use Zone (RUZ) setback for occupied buildings on either side of the UCI Campus Fault (LRDP FEIR Vol I pages 4.5-2 & 8-9). The 2007 LRDP FEIR indicates that because a majority of its soils are dense terraced deposits and characterized as gentle sloping to flat terrain, it is unlikely the campus would be subject to liquefaction or earthquake-induced landslides (LRDP FEIR Vol I page 4.5-9).

Discussion of Potential Project Impacts:

As stated in the LRDP FEIR, building plans for the Center would be reviewed for compliance with the CBC and the UC Seismic Safety Policy (SSP) and as noted above would not be within the RUZ; therefore, impacts associated with fault ruptures would be considered less than significant (LRDP FEIR Vol I pages 5.4-8/9). An earthquake along any number of other local or regional faults could generate strong ground motions at the subject site that could dislodge objects from walls, ceilings, and shelves or even damage and destroy buildings and other structures. Occupants of the new building could be exposed to these hazards; however, grading, foundation, and building structure elements would be designed to meet or exceed the California Building Code (CBC) seismic safety standards. In addition, UCI has adopted a number of programs and procedures to reduce the hazards from seismic shaking by preparing residents for emergencies including through compliance with the aforementioned Seismic Safety Policy.

As such, compliance with these regulatory standards would ensure that hazards associated with seismically induced ground shaking would be less than significant (LRDP FEIR Vol I page 4.5-9).

A geotechnical analysis (See Appendix C) was prepared for the project. As indicated on Figure Three in the analysis, the proposed building would not be located within an area of the site subject to liquefaction. The analysis concluded that liquefaction potential of the site is low and that lateral spreading is not likely to affect the area (Appendix C pages 10-11). The 2007 LRDP FEIR determined that the majority of the campus is characterized as gentle sloping to flat terrain and that impacts associated with landslides are considered to be less than significant (LRDP FEIR Vol I page 4.5-9).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

5.b) Soil Erosion: Less Than Significant Impact

Relevant Elements of Project:
The LRDP FEIR identifies that erosion can occur as a result of, and can be accelerated by, site preparation activities associated with development, vegetation removal in landscaped (pervious) areas, and surface disturbance (LRDP FEIR Vol I page 4.5-10). As stated in the Project Description, the proposed building site is primarily developed; there are no areas of exposed bare soil.

Discussion of Potential Project Impacts:
Demolition of existing surfaces and earthwork would result in exposed soil conditions during construction. As stated in the LRDP FIER site grading and construction activities would comply with Chapters 29 and 70 of the CBC, which regulate excavation and grading activities respectively, and the National Pollutant Discharge Elimination System (NPDES) general permit for construction activities, which requires that construction best management practices (BMPs) be implemented to prevent soil erosion. Such BMPs could include silt fences, watering for dust control, straw-bale check dams, and hydroseeding. The LRDP FEIR concluded that with implementation of these routine control measures potential construction-related erosion impacts would be less than significant (LRDP FEIR Vol I page 4.5-10). As a result, erosion potential would be significantly reduced and less than significant impacts involving soil erosion with respect to construction of the project are anticipated.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

5.c) Unstable Soil: Less Than Significant Impact

Relevant Elements of Project:
As stated in the Project Description, the proposed project site is already primarily developed. The LRDP FEIR indicates that no areas of land subsidence have occurred within the campus (LRDP FEIR Vol I page 4.5-5) and that the majority of campus soils are terraced deposits unlikely to be subject to liquefaction due to material denseness and depth to groundwater (LRDP FEIR Vol I page 4.5-9). Loose or compressible soils are found primarily in undeveloped areas of the South Campus sector bordering Bonita Canyon Drive, more than a mile away from the project site (LRDP FEIR Vol I pages 4.5-11/12).

Discussion of Potential Project Impacts:
As noted in the LRDP FEIR, project compliance with the CBC and implementation of recommendations in a site-specific geotechnical investigation would reduce potential impacts associated with soil stability to a less than significant level (LRDP FEIR Vol I page 4.5-12).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

5.d) Expansive Soil: Less Than Significant Impact

Relevant Elements of Project:
As noted in the LRDP FEIR, expansive soils are prevalent on the UCI campus, including the project site, and generally either a dark brown sandy clay, clayey sand, or lean clay, which can be detrimental to foundations, concrete slabs, flatwork, and pavement. Topsoil throughout the campus is highly expansive, ranging from eight to 12% swell with an underlying material generally consisting of non-expansive to moderately expansive terrace deposits with a swell ranging from zero to 8% (LRDP FEIR Vol I page 4.5-12).

Discussion of Potential Project Impacts:
The CBC includes provisions for construction on expansive soils. Proper fill selection, moisture control, and compaction during construction can prevent these soils from causing significant damage. Expansive soils can be treated by removal (typically the upper three feet below finish grade) and replacement with low expansive soils, lime-treatment, and/or moisture conditioning. The LRDP FEIR concluded that continued compliance with the CBC during implementation of the 2007 LRDP would reduce campus impacts related to expansive soil to less than significant (LRDP FEIR Vol I pages 4.5-12/13).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable
Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

5.e) Alternative Waste Disposal Systems: No Impact
Relevant Elements of Project:
All wastewater generated by the proposed project would be conveyed via local sewers directly into the existing public sanitary sewer system maintained by the Irvine Ranch Water District (IRWD).

Discussion of Potential Project Impacts:
As wastewater disposal for UCI utilizes the sanitary sewer system this issue was focused out of the LRDP FEIR (LRDP FEIR Vol II Appendix A page 15).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

6. GREENHOUSE GAS EMISSIONS

Issues	(A) Potentially Significant Impact	(B) Project Impact Adequately Addressed in LRDP EIR	(C) Less Than Significant with Project-level Mitigation Incorporated	(D) Less Than Significant Impact	(E) No Impact
Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?				✔	
b) Conflict with an applicable plan, policy				✔	

or regulation adopted for the purpose of reducing the emissions of greenhouse gases?					

6.a-b) Greenhouse Gas Emissions: Less Than Significant

Relevant Elements of Project:

Implementation of the proposed project, like all other projects implemented under the 2007 LRDP, would increase greenhouse gas (GHG) emissions associated with the campus as a result of project construction. A greenhouse gas assessment (GHGA) was completed as a component of the air quality analysis for the Center project (See Appendix D), which evaluated the project's construction and operational related GHG emissions. The assessment notes that sources of GHG emissions during construction would include off-road construction vehicles and equipment, on-road haul trucks, and employee vehicles (Appendix D page 24). The primary source of the project's operational related GHG emissions would be generated by motor vehicles, and that other emissions would be generated from fuel combustion for space and water heating, as well as off-site GHG emissions resulting from the generation of electricity consumed by the project (Appendix D page 25). GHGs emitted from these sources would include carbon dioxide, nitrous oxide, hydrofluorocarbons, ozone, and aerosols (LRDP FEIR Vol I page 5-8).

Discussion of Potential Project Impacts:

The GHGA prepared for the project calculated project construction and operation related emissions using the URBEMIS 2007 v. 9.2.4 computer model. The project's total construction carbon dioxide emissions as indicated in Table 4 (Appendix D page 27) would be 292.0 metric tons per year and its 30-year project life average annual emissions per SCAQMD thresholds would be 9.70 metric tons per year. The project's total annual operational carbon dioxide emissions as indicated in Table 5 (Appendix D page 28) would be 481.10 metric tons per year. The project's total estimated annual emissions as noted in Table 5 would be 490.80 metric tons per year, below the SCAQMD suggested significance threshold of 3,000 metric tons per year. Thus, the GHGA concluded that the project would not result in a significant impact due to GHG emissions and no mitigation measures are required (Appendix D page 28).

Although the Center would not result in significant impacts, as stated in the Project Description the project would be constructed consistent with the University's Policy on Sustainable Practices (Policy), which the GHGA determined would further reduce emissions on the campus (Appendix D page 28). Measures from the Policy incorporated into the project would result in significant energy savings, construction waste reductions, recycled material use, and water conservation. Such features, as described in the Project Description, would include an overall energy efficiency that would exceed the standards of California Title 24 criteria by at least 20%. To achieve this goal, the project design would include building features such as high-performance glazing, insulation and radiant barrier, high reflectance roofing materials, high efficiency natural gas water heaters, low flow hot-water faucets, energy efficient lighting, Energy Control Systems, efficient exhaust fans, and high efficiency air conditioning equipment where applicable. Individual building component features will contribute to overall building annual energy savings, allowing the project to exceed the Code required minimum energy performance.

Additionally, consistent with UC Policy, in June 2009 UCI adopted a climate action and sustainability plan entitled "Achieving Net Zero: Climate Change & Sustainability." The goals presented in the plan include the university achieving 2000 GHG emissions levels by 2012, 1990 GHG emissions levels by 2020, and 80% below 1990 GHG emissions levels by 2050 with a commitment to achieve climate neutrality as soon as possible. This commitment goes beyond the goals of AB 32 and the Governor's Executive Order S 3 05, both of which set goals to achieve 1990 levels of GHG emissions by 2020.

Combined with all other sources of GHG emissions associated with implementation of the 2007 LRDP, the Center would incrementally contribute to global climate change (LRDP FEIR Vol I page 5-9); however, as determined by the GHGA it would not interfere with California's ability to achieve its GHG reduction requirements (Appendix D page 28). As such, the GHGA concluded that the Project's contribution to the existing significant cumulative effects associated with global climate change would not be cumulatively considerable (Appendix D page 28). Further, the 2007 LRDP FEIR concluded that compliance with the Policy and existing and future emissions reduction strategies set by the State of California would substantially lessen UCI's contribution to global climate change (LRDP FEIR Vol I page 5-12). In conclusion, the proposed Center would result in less than significant impacts with respect to greenhouse gas emissions.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

7. HAZARDS AND HAZARDOUS MATERIALS

Issues	(A) Potentially Significant Impact	(B) Project Impact Adequately Addressed in LRDP EIR	(C) Less Than Significant with Project-level Mitigation Incorporated	(D) Less Than Significant Impact	(E) No Impact
Would the project:					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?				✓	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				✓	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?					✓

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?					✓
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				✓	
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				✓	
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?		✓			
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				✓	

7.a-b) Hazardous Materials Transport, Disposal, Release: Less Than Significant Impact

Relevant Elements of Project:

The LRDP FEIR determined that implementation of the 2007 LRDP would involve the continued transport, use, and disposal of hazardous material including chemical, radiological, bio-hazardous, and materials associated with infrastructure (LRDP FEIR Vol I page 4.6-21). Storage of hazardous materials and waste on campus complies with applicable regulations, including suitable containers that are sealed at all times (when not adding or removing waste) (LRDP FEIR Vol I page 4.6-29). Temporary and short-term hazards in association with construction of the project would be limited to transport, storage, use and disposal of fuels, solvents, paints and other coating materials used during the various construction stages of the project. Operation of the Center could involve the transport, use, or disposal of regulated hazardous materials similar to those present in other buildings on the campus such as minor quantities of material related to landscaping, and general building and site maintenance.

Discussion of Potential Project Impacts:

UCI has an Emergency Management Plan, which addresses the campus community's planned response to various levels of human-made or natural emergencies, including the release of hazardous materials. Responsible units providing technical expertise in containment and cleanup of spill chemicals, radioactive, biological, asbestos-containing, or other regulated materials are EH&S, Orange County Fire Authority, County HAZMAT, and outside contractors. A Hazardous Materials Business Plan also addresses emergency and spill response procedures which includes, but is not limited to specific emergency response instructions, locations of personnel and equipment resources (i.e., telephone numbers, fire extinguishers, spill kits, safety showers/eyewashes, first aid kits, etc.), and specialty hazard instructions as well as appropriate training (LRDP FEIR Vol I page 4.6-30).

The University's standard construction specifications would require that contractors working on the Center project be responsible for identification and proper removal and disposal of any unexpected soil or water contaminants encountered during grading operations. Contractors working on the campus are responsible for ensuring that hazardous materials and waste are handled, stored and disposed of in accordance with all applicable federal, state, and local laws and regulations. Routine construction control measures would be sufficient to avoid significant impacts. Any hazardous wastes generated by the campus would be removed from the campus by licensed transporters for treatment or disposal at licensed waste facilities (LRDP FEIR Vol I page 4.6-7).

Significant hazards due to minor applications of typical hazardous materials such as those related to building and site maintenance are considered unlikely. Operation of the Center would comply with all applicable federal and State laws, as well as campus programs, practices, and procedures related to the transportation, storage, and use of hazardous materials as described above and in the LRDP FEIR, which would minimize the potential for a release and providing for prompt and effective cleanup if an accidental release occurs. The LRDP FEIR determined that implementation of the 2007 LRDP would have a less than significant impact on the use, disposal, and transportation of hazardous materials to the public and on the procedures release of hazardous materials into the environment from an accident due to with compliance with existing regulations, programs, practices, and procedures. As the project would comply with these same regulations, programs, practices, and procedures the Center's impacts related to use, dispose, transportation, and accidental release of hazardous materials would be less than significant (LRDP FEIR Vol I pages 4.6-28 & 30).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

7.c) Proximity to Schools: No Impact

Relevant Elements of Project:
No existing or proposed schools are located within a quarter mile of the proposed project.

Discussion of Potential Project Impacts:
As no schools are located within a quarter mile from the project site, no impact to schools are anticipated (LRDP FEIR Vol I pages 4.6-31/32).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

7.d) Hazardous Materials Sites: No Impact

Relevant Elements of Project:
The 2007 LRDP FEIR concluded that no recorded hazardous materials sites are on or within the immediate vicinity of the project site. A search of the California Department of Toxic Substances Control's EnviroStor database (June 7, 2011) confirmed the absence of any hazardous waste sites in the project vicinity. The closest UCI recorded hazardous materials site is located on the North Campus Corporation Yard, more than a mile away northeast of the project site. According to the UCI Environmental Health and Safety Department, no other known hazardous material sites exist on the campus (LRDP FEIR Vol I pages 4.6-32/33).

Discussion of Potential Project Impacts:
Since there are no reported hazardous waste or substances sites within or near the project limits, this project would have no impact involving such a site.

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination After All Mitigation:
Not applicable

7.e-f) Airports: Less Than Significant Impact

Relevant Elements of Project:
The proposed project site is within the airport planning area for the John Wayne Airport (JWA), a public facility located approximately two miles away to the northwest. There are no private airstrips located near the campus.

Discussion of Potential Project Impacts:
The Airport Land Use Commission for Orange County has established Runway Protection Zones (RPZ) for JWA, also called Accident Potential Zones (APZ), which define those surrounding areas that are more likely to be affected if an aircraft-related accident were to occur. Those zones do not extend to the vicinity of the proposed project site. Because most aircraft accidents take place on or immediately adjacent to the runway it is unlikely that aircraft operating at JWA pose a safety threat to the UCI campus. Additionally, as reported in the 2007 LRDP FEIR, no accidents have occurred near the campus within the past 26 years. As such, it is considered unlikely that aircraft operating at JWA would pose a safety hazard to people residing or working at the proposed project site (LRDP FEIR Vol I page 4.6-33).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

7.g) Emergency Response: Project Impact Adequately Addressed in LRDP EIR

Relevant Elements of Project:
As stated above, UCI has an Emergency Management Plan which addresses roles and responsibilities, communications, training and procedures to guide organized responses to various levels of human-made or natural emergencies for all campus staff, students, and visitors (LRDP FEIR Vol I page 4.6-34).

Discussion of Potential Project Impacts:
Construction-related lane or road closures are not anticipated to be necessary to construct the project. However, if the contractor determines that a temporary road closure is necessary during the project's construction, LRDP FEIR MM Haz-6A would be implemented to ensure that sufficient notification is provided to the UCI Fire Marshall to allow coordination of local emergency services that might be affected (LRDP FEIR Vol I page 4.6-34). Operational aspects of the proposed Center would not interfere with an adopted emergency response plan or emergency evacuation plan.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:

Haz-6A Prior to initiating on-site construction for future projects that implement the 2007 LRDP and would involve a lane or roadway closure, the construction contractor and/or UCI Design and Construction Services shall notify the UCI Fire Marshal. If determined necessary by the UCI Fire Marshal, local emergency services shall be notified of the lane or roadway closure by the Fire Marshal.

Significance Determination After LRDP EIR Mitigation Measures:
Less than significant

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Less than significant

7.h) Wildland Fires: Less Than Significant Impact

Relevant Elements of Project:
Vegetation communities prone to wildfire include coastal sage scrub and grasslands. The coastal sage scrub community includes plant materials that provide heavy fuel which can ignite high intensity wildland fires and grasses are considered to be a flashy fuel which can easily ignite during dry conditions LRDP FEIR Vol I page 4.6-35). As indicated on LRDP FEIR VI Figure 4.3-2 (LRDP FEIR VI page 4.3-5) these

types of plant communities are not present on or adjacent the proposed project site.

Discussion of Potential Project Impacts:
As the proposed Center site neither contains nor is adjacent to coastal sage scrub or grassland communities the project would have less than significant impacts with respect to wildland fires. Additionally, the LRDP FEIR states that because UCI is located in a developed area it is not substantially prone to the spread of these types of fires (LRDP FEIR Vol I page 4.6-8).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

8. HYDROLOGY AND WATER QUALITY

Issues	(A) Potentially Significant Impact	(B) Project Impact Adequately Addressed in LRDP EIR	(C) Less Than Significant with Project-level Mitigation Incorporated	(D) Less Than Significant Impact	E) No Impact
Would the project:					
a) Violate any water quality standards or waste discharge requirements?				✓	
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?					✓
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?				✓	

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?				✓	
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?				✓	
f) Otherwise substantially degrade water quality?					✓
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?					✓
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?					✓
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?					✓
j) Inundation by seiche, tsunami, or mudflow?					✓

8.a) Water Quality Standards: Less Than Significant

Relevant Elements of Project:

The project, as noted in the Project Description, would be located within an urbanized area of the campus and runoff from the project would be collected on site and conveyed to the existing campus drainage network. As stated in the 2007 LRDP FEIR, water quality standards for stormwater developed by the State Water Resources Control Board (SWRCB) or Regional Water Quality Control Board (RWQCB), which would control pollutants contained in runoff generated from campus properties, including the proposed Center, are set forth in applicable permits (which also serve as waste discharge requirements). Stormwater permits that are applicable to UCI include the General Construction Storm Water Permit, the General Industrial Storm Water Permit, and the General Small MS4s Storm Water Permit. All of these permits control pollutants in runoff from campus properties. (LRDP FEIR Vol I page 4.7-19).

Discussion of Potential Project Impacts:

The LRDP FEIR concluded that because UCI would continue to comply with these permits during implementation of the 2007 LRDP, including the project, no impact would occur with regard to violation of storm water standards or waste discharge requirements. Thus, no mitigation measures are required (LRDP FEIR Vol I page 4.7-19).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:

None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

8.b) Groundwater: No Impact

Relevant Elements of Project:
No groundwater removal is proposed in association with the proposed Center. UCI, including the proposed project, uses water supplied by the IRWD (LRDP FEIR Vol I page 4.7-27).

Discussion of Potential Project Impacts:
As UCI does not obtain water service from groundwater sources, no impacts would occur. This issue was adequately addressed in the 2007 LRDP Initial Study and further analysis in the FEIR was not required (LRDP FEIR Vol I page 4.7-27).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

8.c) Erosion On or Off-Site: *Less Than Significant*

Relevant Elements of Project:
As stated previously, the site for the proposed project is in an urbanized area of the campus and is already primarily developed due to its proximity to the Mesa Court housing complex. The site neither contains nor is adjacent to a stream or river; however, construction of the project would alter the site's existing topography, which as noted in the LRDP FEIR could result in the localized alteration of drainage patterns and erosion (LRDP FEIR Vol I page 4.7-17).

Discussion of Potential Project Impacts:
As indicated in the LRDP FEIR, UCI implements Stormwater Pollution Prevention Plans (SWPPPs) which would reduce the likelihood of alterations in drainage to result in erosion and siltation on- or off-site. As stated in the Project Description, runoff would be collected on site and conveyed to existing storm drain facilities and in-line structural stormwater filtration or other BMPs would be included. Implementation of appropriate BMPs, as part of compliance with construction permits for construction sites greater than one acre, would protect the quality of storm water runoff by controlling runoff and by ensuring that the quality of storm water flows meets the applicable requirements of the RWQCB. In addition, the site would be managed under the campus's Storm Water Management Plan in compliance

with the Phase II regulations. Therefore, short-term impacts resulting from alterations of the site's drainage during construction would be less than significant. (LRDP FEIR Vol I page 4.7-17)

Although the LRDP FEIR determined that construction on the campus may result in minor alterations to existing drainage patterns of individual sites within the campus, such projects would not result in substantial alterations to the drainage courses of the campus as a whole. The FEIR also concluded that implementation of the 2007 LRDP would convert some areas of the campus from softscape to hardscape which could increase runoff from certain areas (LRDP FEIR Vol I page 4.7-17). Such increased runoff associated with implementation of the 2007 LRDP according to the FEIR may have detrimental effects on and off campus including causing new erosion and worsening existing erosion problems; however, the 2007 LRDP FEIR indicates that projects on the Main Campus which disturb less than an acre of land would not substantially affect runoff volumes causing substantial erosion or siltation and result in a less than significant impact following construction (LRDP FEIR Vol 1 page 4.7-18). Therefore, as construction of the proposed project would disturb approximately 0.25 acre of land, per the Project Description, the project would result in less than significant impacts. No mitigation measures would be necessary.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Less than significant

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:

Less than significant

8.d) Flooding On or Off-Site: Project Impact Adequately Addressed in LRDP EIR

Relevant Elements of Project:
As stated previously, the site for the proposed project is in an urbanized area of the campus and is already primarily developed due to its proximity to the Mesa Court housing complex. The site neither contains nor is adjacent to a stream or river; however, construction of the project would alter the site's existing topography, which as noted in the LRDP FEIR could result in flooding (LRDP FEIR Vol I page 4.7-17).

Discussion of Potential Project Impacts:
As indicated in the LRDP FEIR, UCI implements Stormwater Pollution Prevention Plans (SWPPPs) which would reduce the likelihood of alterations in drainage to result in flooding on- or off-site. As stated in the Project Description, runoff would be collected on site and conveyed to existing storm drain facilities and in-line structural stormwater filtration or other BMPs would be included. Implementation of appropriate BMPs, as part of compliance with construction permits for construction sites greater than one acre, would protect the quality of storm water runoff by controlling runoff and by ensuring that the quality of storm water flows meets the applicable requirements of the RWQCB. In addition, the site would be managed under the campus's Storm Water Management Plan in compliance with the Phase II regulations. Therefore, short-term impacts resulting from alterations of drainage and hydrology during construction would be less than significant. (LRDP FEIR Vol I page 4.7-17).

Although the LRDP FEIR determined that construction on the campus may result in minor alterations to existing drainage patterns of individual sites within the campus, such projects would not result in substantial alterations to the drainage courses of the campus as a whole. As stated above, implementation of the 2007 LRDP would convert some areas of the campus from softscape to hardscape which could increase runoff from certain areas; however, projects located on the Main Campus, which disturb less than an acre of land would not substantially affect runoff volumes causing flooding and result in a less than significant impact following construction (LRDP FEIR Vol 1 pages 4.7-17-18). Therefore, as construction of the proposed project would disturb approximately 0.25 acre of land, the Center would result in less than significant impacts. No mitigation measures would be necessary.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Less than significant

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Less than significant

8.e) Drainage System Capacity/Substantial Additional Polluted Runoff: Less Than Significant Impact

Relevant Elements of Project:
As stated previously, the site for the proposed project is in an urbanized area of the campus and is already primarily developed due to its proximity to the Mesa Court housing complex. As stated in the Project Description, stormwater runoff from the proposed project would be conveyed to existing drainage facilities and in-line structural filtration or other BMPs would be included consistent with UCI's Stormwater Management Program in conformance with water quality control standards established in the countywide Drainage Area Master Plan. The composition of runoff from the proposed building rooftop and ground level hardscape areas would be similar to that from the campus as a whole.

Discussion of Potential Project Impacts:
The LRDP FEIR indicates that land disturbing construction activities associated with implementation of the 2007 LRDP may result in the capacity of the campus' storm drain facilities temporarily being exceeded and/or an increase in pollutant loads. The LRDP FEIR concluded that the implementation of appropriate BMPs, as part of compliance with SWPPPs would control runoff and associated pollutant loads. Therefore, short-term impacts resulting from alterations of drainage and hydrology during construction would be less than significant (LRDP FEIR Vol I page 4.7-17).

The 2007 LRDP FEIR determined that implementation of the 2007 LRDP would convert some areas of the campus from softscape to hardscape, which could increase runoff water, effecting on and off campus storm water conveyance system, drain inlet, and catch basin capacity; however, as previously stated, projects located on the Main Campus, which disturb less than one acre of land would not substantially create or contribute runoff water and associated pollutant loads and result in a less than significant impact to hydrology and drainage patterns following construction (LRDP FEIR Vol I pages 4.7-17-18). Additionally as stated above, the composition of runoff from the proposed Center would be similar to that

from the campus as a whole. Therefore, as construction of the proposed project would disturb approximately 0.25 acre of land, per the Project Description, the project would result in less than significant impacts. No mitigation measures would be necessary.

Significance Determination After LRDP EIR Mitigation Measures:
None required

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not Applicable

8.f) Otherwise Substantially Degrade Water Quality: No Impact

Relevant Elements of Project:
As stated in the Project Description, the project would include stormwater management improvements and flows from the Center would drain to the existing storm drainage system. Ultimately, drainage from the site would be transported via San Diego Creek to Upper Newport Bay, located approximately two miles west of the UCI campus. Runoff from the campus accounts for less than one percent of all flows into the Bay (LRDP FEIR Vol I page 4.7-10). Site runoff currently consists of overland flows during rain events, and the water quality is comprised of chemical elements present in rainwater and materials typically found in development related stormwater. With regard to general water quality impacts from storm water and other runoff, the various pollutants (e.g. sediments, nutrients, trash and debris, and pesticides) potentially generated at UCI could adversely affect water quality in a variety of ways (LRDP FEIR Vol I pages 4.7-19-21). The composition of runoff from the proposed project post-construction, as noted above in response to question 8.e, would be similar to that which currently flows from the site the campus as a whole during rain and other runoff events.

Discussion of Potential Project Impacts:
The proposed project would potentially generate water quality impacts related to construction and post-construction conditions. Potential water quality impacts during the project's construction phases would be the same type as those evaluated in the 2007 LRDP FEIR. Construction of the project could result in additional sources of polluted runoff through site clearing and grading, stockpiling of soils and materials, painting, concrete pouring, and asphalt surfacing (LRDP FEIR Vol I page 4.7-21). Pollutants associated with construction activities that could result in water quality impacts include soils, debris, other materials generated during site clearing and grading, fuels and other fluids associated with the equipment used for construction, paints, other hazardous materials, concrete slurries, and asphalt materials. These pollutants could affect water quality if they are washed off site by storm water or non-storm water, or are blown or tracked off site to areas susceptible to wash off by storm water or non-storm water (LRDP FEIR Vol I page 4.7-21). Due to the extent of construction anticipated under the 2007 LRDP, its implementation could result in significant short-term impacts to water quality from uncontrolled sediment and pollutants from construction sites. In accordance with a Stormwater Pollution Prevention Plan (SWPPP) prepared to satisfy the conditions of the statewide General Construction Storm Water Permit stormwater management practices would mitigate the project's construction related impacts to less than significant. All construction activities would be carefully managed to prevent runoff containing soil, vegetation materials and, construction wastes from leaving the site (LRDP FEIR Vol I page 4.7-22).

The LRDP FEIR indicates that following construction, the development of individual project areas with structures, concrete, asphalt, and landscaping would reduce the potential for erosion on the site and sediment discharges. Also, equipment and hazardous materials associated with construction would be removed from the site, which would reduce the potential for pollutants to be discharged from the site. However, use and operation of projects such as the Center would generate pollutants that could impact water quality in other ways. Implementation of the LRDP, the FEIR concluded, could result in additional impacts to San Diego Creek; however, as noted in response to 8.d and e because the Center site would be less than an acre impacts would be less significant.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None Required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

8.g) Place Housing within a 100-Year Flood Hazard Area: No Impact

Relevant Elements of Project:
The entire UCI campus including the project site is within Flood Zone X outside the 100-year floodplain (LRDP FEIR VI page 4.7-27).

Discussion of Potential Project Impacts:
Since there are no 100-year flood hazard areas on the UCI campus, this project would have no impact resulting from the construction of housing in such areas. This issue was adequately addressed in the 2007 LRDP Initial Study and further analysis in the FEIR was not required (LRDP FEIR Vol I page 4.7-27).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

8.h) Place Structures within a 100-Year Flood Hazard Area: No Impact

Relevant Elements of Project:
The entire UCI campus including the project site is within Flood Zone X outside the 100-year floodplain (LRDP FEIR Vol I page 4.7-27).

Discussion of Potential Project Impacts:
Since there are no 100-year flood hazard areas on the UCI campus, this project would not place any structures in a manner that would impede or redirect flood flows. This issue was adequately addressed in the 2007 LRDP Initial Study and further analysis in the FEIR was not required (LRDP FEIR Vol I page 4.7-27).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

8.i) Expose People or Structures to a Significant Risk Involving Flooding: No Impact

Relevant Elements of Project:
There are no levees or dams anywhere on or near the UCI campus.

Discussion of Potential Project Impacts:
Since the project site is not within a levee or dam inundation area, this project would not expose any people or any structures to such flood hazards. The LRDP FEIR determined that it is unlikely that flooding because of dam or levee failure would have an effect on the campus. This issue was adequately addressed in the 2007 LRDP Initial Study and further analysis in the FEIR was not required (LRDP FEIR Vol I page 4.7-27).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

8.j) Seiche, Tsunami, or Mudflow: No Impact

Relevant Elements of Project:
A tsunami is the secondary effect of an earthquake that occurs as waves are generated in the ocean at a point near the earthquake source. Seiche, i.e. catastrophic release of water from a water body, is typically associated with land locked bodies of water or water storage facilities, none of which occurs near the campus. No major hillsides are near the project site from which mudflow conditions could occur (LRDP FEIR Vol I pages 4.7-24/25).

Discussion of Potential Project Impacts:
As UCI is more than three miles from the Pacific Ocean and sufficient evacuation notice would be provided by the West Coast and Alaska Tsunami Warning Center, it is unlikely that the project would be impacted by tsunami. Since the project site is not located in an area threatened by potential seiche conditions and does not contain topographic features that would be conducive to mudflows, this project would not expose any people or any structures to such hazards (LRDP FEIR Vol I pages 4.7-24/25).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

9. LAND USE AND PLANNING

Issues	(A) Potentially Significant Impact	(B) Project Impact Adequately Addressed in LRDP EIR	(C) Less Than Significant with Project-level Mitigation Incorporated	(D) Less Than Significant Impact	(E) No Impact
Would the project:					
a) Physically divide an established community?					✔
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the LRDP, general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?					✔
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?					✔
d) Create other land use impacts?					✔

9.a) Divide an Established Community: No Impact

Relevant Elements of Project:

As stated in the Project Description, the project is consistent with the 2007 LRDP. Circulation and infrastructure systems, also described in the Project Description, are in place to serve the proposed Center.

Discussion of Potential Project Impacts:

This project would not physically affect the configuration of any surrounding sites or have any effect upon the physical structure of the campus, beyond the proposed building footprint. The project would not include construction or removal of streets. The proposed Center would complement the existing uses and buildings in the Academic Core by introducing a consistent and similarly designed development. Additionally, as stated in the Project Description, its proposed location on the edge of one of UCI's student housing complexes would be advantageous. As such, neither construction nor operation of the proposed project would divide an established community. Thus, no impacts would occur with respect to the division of an established community.

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:

None required

Significance Determination After LRDP EIR Mitigation Measures:

Not applicable

Additional Project-Level Mitigation Measures:

None required

Significance Determination After All Mitigation:

Not applicable

9.b) Conflict with an Applicable Land Use Plan: No Impact

Relevant Elements of Project:

The University of California is the only agency with local land use jurisdiction over projects located on the campus; the applicable land use plan is the aforementioned 2007 LRDP. No 2007 LRDP policies were adopted for this area of the campus with the intent of avoiding or mitigating an environmental effect (LRDP FEIR Vol I page 4.8-15).

Discussion of Potential Project Impacts:

Since no 2007 LRDP policies were adopted for this area of the campus with the intent of avoiding or mitigating an environmental effect, there would be no impact.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:

None required

Significance Determination After LRDP EIR Mitigation Measures:

Not applicable

Additional Project-Level Mitigation Measures:

None required

Significance Determination after All Mitigation:
Not applicable

9.c) Conflict with an Applicable Conservation Plan: No Impact

Relevant Elements of Project:
No Habitat Conservation Plan, Natural Community Conservation Plan, or any other land conservation plan regulates the project site.

Discussion of Potential Project Impacts:
Because the project site is not regulated by a habitat or conservation plan, no conflict would result.

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:
None required

Significance Determination After LRDP EIR Mitigation Measures
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination After All Mitigation:
Not applicable

9.d) Create other Land Use Impacts: No Impact

Relevant Elements of Project
As previously noted, construction or operation of the proposed Center would not affect the physical framework of the campus, or land use opportunities of surrounding land.

Discussion of Potential Project Impacts
The proposed project, as stated in the Project Description is consistent with the 2007 LRDP, and would be compatible with other development and features in the Academic Core sector. The project would thus not create "Other Land Use Impacts."

Applicable LRDP EIR Mitigation Measures Incorporated In The Project
None required

Significance Determination After LRDP EIR Mitigation Measures
Not applicable

Additional Project-Level Mitigation Measures
None required

Significance Determination After All Mitigation
Not applicable

10. NOISE

Issues	(A) Potentially Significant Impact	(B) Project Impact Adequately Addressed in LRDP EIR	(C) Less Than Significant with Project-level Mitigation Incorporated	(D) Less Than Significant Impact	(E) No Impact
Would the project result in:					
a) Exposure of persons to or generation of noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies?				✓	
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?		✓			
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				✓	
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project (including construction)?		✓			
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?					✓
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?					✓

10.a) Noise Standards: Less Than Significant Impact

Relevant Elements of Project:

As stated in the Project Description, the proposed project would construct a new building for the UCI Alumni Association on a site which is primarily already developed. As discussed in the LRDP FEIR, the California Department of Health Services (CDHS) developed guidelines for community noise acceptability for use by local agencies (LRDP FEIR Vol I page 4.9-20). LRDP FEIR Table 4.9-1 provides the noise level ranges developed by the CDHS for various land use categories. As an office/professional building, the table indicates that the normally acceptable noise standard limit for the project would be

70dBA CNEL, defined as satisfactory for the specified land use, assuming that conventional construction methods are used. The conditionally acceptable noise limit would be approximately 77.5dBA CNEL, assuming conventional construction also but with either closed windows and fresh air supply or air conditioning (LRDP FEIR Vol I page 4.9-7). UCI complies with CCR Title 24 pertaining to noise standards (LRDP FEIR Vol I page 4.9-20). The LRDP FEIR states that vehicular traffic noise would be the primary noise source to affect implementation of the LRDP (LRDP FEIR Vol I page 4.9-24). The proposed Center is not a sensitive receptor, which the LRDP FEIR defines as faculty, staff and student housing, libraries, classrooms, and child-care centers (LRDP FEIR Vol I page 4.9-4).

Discussion of Potential Project Impacts:
Projects that implement the LRDP and result in an exposure of persons to, or generation of, noise levels in excess of the levels in Table 4.9-1 (described above) would have a significant noise impact. Table 4.9-4 in the 2007 LRDP FEIR provides the existing and projected noise levels for all the study area intersections associated with implementation of the LRDP. The levels were initially measured at a distance of 50 feet from the centerline of each roadway segment and were subsequently used to determine the distances to the 60, 65, 70, and 75 dBA CNEL noise contours. As the table indicates, the existing noise contour 50 feet from the centerline of the adjacent roadways is 57dBA CNEL for Mesa Road and 75dBA CNEL for University Drive. Future traffic related noise levels 50 feet from the centerline for these roadway segments are estimated to be 58dBA CNEL for Mesa Road and 76dBA CNEL for University Drive. The future traffic related 70dBA CNEL noise contours are projected to be 90 feet from the centerline of University Drive and based upon Table 4.9-4 estimated to be less than 30 feet from Mesa Road (LRDP FEIR Vol I pages 4.9-16/17). Although the project would partially be constructed inside the future (with LRDP) Mesa Road 70dBA CNEL noise contour, with conventional construction and air conditioning less than significant impacts with respect to noise standards would occur. Further, the LRDP FEIR concluded that the difference between the existing and future-with-project traffic noise level 50 feet from the centerline of Mesa Road (1) and University Drive (1) would not be perceptible to the average human ear (LRDP FEIR Vol I page 4.9-25). Additionally, as noted above the Center would not be considered a sensitive land use. Therefore, the proposed project would have less than significant impacts with respect to subjecting people working in, visiting, or attending functions at the Center to excessive noise.

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:
None required

Additional Project-Level Mitigation Measures:
None required

Significance Determination After All Mitigation:
Not applicable

10.b) Groundborne Noise: Project Impact Adequately Addressed in LRDP EIR
Relevant Elements of Project:
As stated in the project description, the proposed project would construct a new building on a portion of a parking lot. Construction of the proposed project may require the use of demolition equipment such as jackhammers; however, pile driving as noted in the Project Description would not be necessary. Operation of the proposed Center would not be anticipated to include activities that would generate groundborne noises or vibrations. The project site is approximately 35 feet away from the closest

buildings in the Mesa Court student housing complex (see Exhibit 5), considered a noise sensitive land use. The adjacent segment of University Drive is not a designated truck route in the city of Irvine.

Discussion of Potential Project Impacts:
Operation of the proposed Center would not be expected to produce groundborne vibrations or groundborne noise levels. As University Drive is not a designated truck route within the Irvine it would not be expected produce any significant groundborne vibration, which would affect the project. Due the project's proximity to Mesa Court, noted above, LRDP MM Noi-2a(iii) would be implemented during construction.

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:
Noi-2A(viii) Loud construction activity such as jackhammering, concrete sawing, asphalt removal, pile driving, and large-scale grading operations occurring within 600 feet of a residence or an academic building shall not be scheduled during any finals week of classes. A finals schedule shall be provided to the construction contractor.

Significance Determination After LRDP EIR Mitigation Measures:
Less than significant

Additional Project-Level Mitigation Measures:
None required

Significance Determination After All Mitigation:
Less than significant

10.c) Permanent Ambient Noise: Less Than Significant Impact
Relevant Elements of Project:
As stated previously, the proposed project would construct a new building for the UCI Alumni Association on an already primarily developed site adjacent the Mesa Court housing complex. Existing ambient noise sources in the immediate vicinity of the project site include vehicular traffic along Mesa Road, University Drive, and parking lot 14, as well as those associated with Mesa Court. As stated in Section 10.a, the 2007 LRDP FEIR indicated that permanent noise sources could be divided into vehicular and stationary sources, and from increased human activity related to the LRDP's implementation. Projects that implement the LRDP and would result in a permanent increase of 3dBA or more in ambient noise levels at sensitive receptors would have a significant impact (2007 LRDP FEIR Vol I pages 4.9-24/25).

Discussion of Potential Project Impacts:
As the project is consistent with the LRDP it would not result in traffic volumes higher than analyzed in the LRDP FEIR and therefore would not result in significant permanent effects involving traffic noise along adjacent roadways. Noise would be generated by vehicles associated with the project parking in lot 14; however, as such noises (car doors slamming, cars starting, cars accelerating away from the parking stalls, etc) are currently occurring on the lot any additional noise would not result in a substantially noticeable permanent increase in ambient noise levels within the vicinity. Due to the relatively small volume of traffic expected to be associated with the operation of the project, related traffic noise is not expected to result in substantial permanent increase in ambient noise levels in the project vicinity (See Section 6 Transportation/Traffic). Deliveries to and/or pickups from this facility and maintenance of this facility may result in a minimal increase in daily ambient noise levels but would be considered less than

significant. Noise generated by rooftop mechanical equipment (air conditioning/heating) would not be audible beyond the project site, with typical sound attenuation features to be included in the project design. Once completed, the Center would not be expected to represent a noticeable substantial permanent increase of noise levels in the project vicinity and ambient noise levels would be typical of conditions throughout the academic core. As noted in the Project Description and identified on Exhibit 4, construction of the Center would include an acoustic treatment to minimize the impact of noise generated by the building's use on Mesa Court. Additionally, the project would act as a buffer between the Mesa Court housing complex and road noise generated by University Drive. Impacts are considered less than significant and no mitigation measures would be required.

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination After All Mitigation:
Not applicable

10.d) Temporary Ambient Noise: Project Impact Adequately Addressed in LRDP EIR.

Relevant Elements of Project:
Project construction, as stated in the LRDP FEIR (Vol I page 4.9-31) would be projected to require conventional construction techniques and standard equipment such as scrapers, graders, backhoes, loaders, tractors, cranes, and miscellaneous trucks. Specialized construction activities that generate unusually loud and repetitive noise such as pile driving would not be required to complete the project. A range of truck types will be required to transport machinery, supplies, remove waste materials, etc. on and off-site during the project's various construction stages. The heaviest of these trucks will likely be required during the grading phase. Construction related truck traffic would also comply with the City of Irvine's Designated and Restricted Truck Routes. As previously mentioned, the Mesa Court student-housing complex adjacent the site is considered a noise sensitive land use.

Discussion of Potential Project Impacts:
As indicated in the LRDP FEIR, the project would generate noise that could expose nearby receptors to elevated noise levels during its approximately 16-month construction period. The magnitude of the impact would depend on the type and duration of the activity, type of construction equipment used, distance between the noise source and receiver, and intervening structures, topography, and barriers. Noise generated by the types of construction equipment listed above would range from 60 to 90dBA at 50 feet from the source and propagates as a point source that decays at a rate of 6dBA per doubling of distance from the source (assuming no ground interaction). Thus, project construction activities would be expected to be audible in the immediate area (LRDP FEIR Vol I page 4.9-32).

Because conventional construction equipment is powered for the most part by internal combustion engines, most already equipped with proper tuning and standard muffling devices, it is not practical to require specific noise limits on construction activities. Instead, UCI, like most cities and counties, restricts construction activities to daylight hours when the noise is considered least intrusive. LRDP FEIR MM

Noi-2A, listed below, would limit construction operations to daytime hours, require proper equipment maintenance and muffling devices, and place restrictions on weekend construction activities. This standard construction specification would reduce temporary noise impacts from construction activities to below a level of significance (LRDP FEIR Vol I pages 4.9-32/33).

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:

Noi-2A Prior to initiating on-site construction for future projects that implement the 2007 LRDP, UCI shall approve contractor specifications that include measures to reduce construction/demolition noise to the maximum extent feasible. These measures shall include, but are not limited to, the following:

i. Noise-generating construction activities occurring Monday through Friday shall be limited to the hours of 7:00 am to 7:00 pm, except during summer, winter, or spring break at which construction may occur at the times approved by UCI.
ii. Noise-generating construction activities occurring on weekends in the vicinity of (can be heard from) off-campus land uses shall be limited to the hours of 9:00 am to 6:00 pm on Saturdays, with no construction occurring on Sundays or holidays.
iii. Noise-generating construction activities occurring on weekends in the vicinity of (can be heard from) on-campus residential housing shall be limited to the hours of 9:00 am to 6:00 pm on Saturdays, with no construction on Sundays or holidays. However, as determined by UCI, if on-campus residential housing is unoccupied (during summer, winter, or spring break, for example), or would otherwise be unaffected by construction noise, construction may occur at any time.
iv. Construction equipment shall be properly outfitted and maintained with manufacturer recommended noise-reduction devices to minimize construction-generated noise.
v. Stationary construction noise sources such as generators, pumps or compressors shall be located at least 100 feet from noise-sensitive land uses (i.e., campus housing, classrooms, libraries, and clinical facilities), as feasible.
vi. Laydown and construction vehicle staging areas shall be located at least 100 feet from noise-sensitive land uses (i.e., campus housing, classrooms, libraries, and clinical facilities), as feasible.
vii. All neighboring land uses that would be subject to construction noise shall be informed at least two weeks prior to the start of each construction project, except in an emergency situation.
viii. Loud construction activity such as jackhammering, concrete sawing, asphalt removal, pile driving, and large-scale grading operations occurring within 600 feet of a residence or an academic building shall not be scheduled during any finals week of classes. A finals schedule shall be provided to the construction contractor.

Significance Determination After LRDP EIR Mitigation Measures:

Less than significant

Additional Project-Level Mitigation Measures:

None required

Significance Determination After All Mitigation:

Less than significant

10.e) Public Airport Noise: No Impact

Relevant Elements of Project:

The proposed project site is located approximately 2.60 miles southeast of John Wayne Airport (JWA), a public facility. The Airport Land Use Commission for Orange County defined the planning area for John Wayne Airport (JWA) as all areas within the 60dB CNEL Noise Contour.

Discussion of Potential Project Impacts:

As discussed in Section 4.9.3.3 of the 2007 LRDP FEIR (Vol I page 4.9-33), the airport's 60 CNEL contour does not extend to the UCI campus; therefore, the proposed project would not be subject to aircraft noise in excess of regulatory limits and no impact would occur.

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:

None required

Significance Determination After LRDP EIR Mitigation Measures:

Not applicable

Additional Project-Level Mitigation Measures:

None required

Significance Determination after All Mitigation:

Not applicable

9.f) Private Airport Noise: No Impact

Relevant Elements of Project:

There are no private airstrips within the vicinity of the proposed project site.

Discussion of Potential Project Impacts:

Since there are no private airstrips in this area, there would be no noise impact from such sources.

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:

None required

Significance Determination After LRDP EIR Mitigation Measures:

Not applicable

Additional Project-Level Mitigation Measures:

None required

Significance Determination After All Mitigation:

Not applicable

11. POPULATION AND HOUSING

Issues	(A) Potentially Significant Impact	(B) Project Impact Adequately Addressed in LRDP EIR	(C) Less Than Significant with Project-level Mitigation Incorporated	(D) Less Than Significant Impact	(E) No Impact
Would the project:					
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				✓	
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?					✓
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?					✓

11.a) Induce Substantial Population Growth: Less Than Significant Impact

Relevant Elements of Project:

The Association currently employs a staff of nine whom would relocate from the Phineas Banning Alumni House to the proposed project upon completion of the building. As stated in the Project Description the number of employees is anticipated to increase to approximately 20 individuals. Staff that would occupy the proposed Center may include persons not currently residing on or near the campus, or in Orange County, and who may; therefore, relocate to more convenient housing on or off campus. The project does not include home construction, either on or off campus. Circulation and utility infrastructure systems, as described in the Project Description, are in place to serve the project. The project would not result in the extension of infrastructure beyond the project site.

Discussion of Potential Project Impacts:

Any new UCI employees resulting from the project would be within the totals foreseen by the 2007 LRDP, which was circulated for public review to nearby jurisdictions and the Southern California Association of Governments. The project is consistent with the LRDP FEIR, which determined that UCI's growth accounts for only a small proportion of the growth that is already planned in the area and that the 2007 LRDP would not directly, induce substantial population growth in the area that would result in adverse impacts on the physical environment (LRDP FEIR Vol I page 4.10-11). UCI does not provide utility service to off-campus areas; therefore, utility extensions and expansions as described above, would not lead to urban growth outside the boundary of the campus. No substantial changes to off-campus utilities provided to UCI by other entities are anticipated to be necessary to complete the project (LRDP FEIR Vol I page 4.10-14). Therefore, the proposed project would have a less than significant indirect impact on population growth in the area.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

11.b-c) Replacement Housing: No Impact

Relevant Elements of Project:
As stated in the Project Description, the proposed project site would construct a new building on the UCI campus. The project would not involve the displacement of existing housing or people necessitating the construction of replacement housing elsewhere.

Discussion of Potential Project Impacts:
As the project would displace neither existing housing nor people, necessitating the construction of replacement housing elsewhere, no impacts would occur.

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

12. PUBLIC SERVICES

Issues	(A) Potentially Significant Impact	(B) Project Impact Adequately Addressed in LRDP EIR	(C) Less Than Significant with Project-level Mitigation Incorporated	(D) Less Than Significant Impact	(E) No Impact
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:					
a) Fire protection?				✓	
b) Police protection?				✓	
c) Schools?				✓	
d) Parks?				✓	
e) Other public facilities?					✓
f) Create other public service impacts?					✓

12.a) Fire Protection: Less Than Significant Impact

Relevant Elements of Project:

As noted in the Project Description, the Center includes a small facility that would provide a new space for the Association's existing activities, which are occurring in the Phineas Banning Alumni House. Fire protection services to the project as with the entire UCI campus, would be provided by the Orange County Fire Authority (OCFA). OCFA Fire Station #4, located just north of the campus on the corner of California and Harvard Avenues, is the primary responder serving the UCI main campus. The station, built in 1966 has a capacity for service of approximately 3,500 calls per year (LRDP FEIR Vol I pages 4.11-6). UCI also employs a Fire Marshal whom is responsible for the campus' fire prevention practices and provides services such as plan review and construction inspections to ensure adequate fire access, as well as fire prevention, for each new project in accordance with California building and fire codes. (LRDP FEIR Vol I pages 4.11-7).

Discussion of Potential Project Impacts:

The LRDP FEIR concluded that no new fire stations or expansion of Fire Station #4 would be needed to maintain adequate levels of service to the main campus to serve LRDP development. The project is consistent with the 2007 LRDP and long-term demand for fire department services would be within the levels projected in the LRDP FEIR. The LRDP FEIR concluded that Station #4 would accommodate the increased demand for fire protection services on the UCI main campus, and that implementation of the 2007 LRDP is not anticipated to increase the station's demand to a level requiring new facilities or substantial alterations to existing facilities that would result in adverse impacts on the physical environment (LRDP FEIR Vol I pages 4.11-6). Additionally, as the proposed Center would provide new space for an existing campus use it would not be anticipated to result in a substantial increase in calls for fire protection service.

Further, as noted above the Fire Marshal would review the Center and as discussed in Section 6 UCI has an Emergency Management Plan, which addresses campus emergency response, including fire, and emergency access on the campus. These actions, mandated by state and federal law, would limit the number of incidents requiring the OCFA to respond to on-campus calls. The control of on-campus demand for fire services would reduce the need for new off-campus fire facilities or expansions of existing facilities (LRDP FEIR Vol I page 4.11-7). Thus, the project would not result in any substantial adverse physical impact as a result of increased demand for fire protection services that results in the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts.

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination After All Mitigation:
Not applicable

12.b) Police Protection: Less Than Significant Impact

Relevant Elements of Project:
As noted in the Project Description, the proposed Center is a small facility that would provide new space for the UCI Alumni Association, which currently operates from the Phineas Banning Alumni House on the campus; therefore the building would not be anticipated to represent a unique land use that would attract or stimulate criminal activities and would not require new police protection services or facilities. The UCI Police Department provides all police services (all patrol, investigation, crime prevention education, and related law enforcement duties) for the campus and employs 30 sworn officers, which as the LRDP FEIR indicates meets the general goal of an acceptable level of service (one officer per 1,000 persons in the population). The UCI Public Services Building, located on East Peltason Drive, which houses the Department, was renovated prior to adoption of the 2007 LRDP (LRDP FEIR Vol I page 4.11-3).

Discussion of Potential Project Impacts:
The LRDP FEIR determined that demands on police protection services for UCI are likely to increase with campus population growth and that some expansion or renovation of existing facilities or construction of new facilities may be required to maintain adequate service levels (LRDP FEIR Vol I page 4.11-8). However, as the proposed Center would provide new space for an existing campus use it would not be anticipated to result in a substantial increase in calls for police protection service, which would require construction of new facilities, the construction of which could cause significant environmental impacts. Further, no significant impacts associated with additional police facilities were anticipated in the LRDP FEIR (LRDP FEIR Vol I page 4.11-9).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

12.c) Schools: Less Than Significant Impact

Relevant Elements of Project:
The Irvine Unified School District (IUSD) provides kindergarten through grade 12 (K-12) public education services for school age children residing on the UCI campus. The demand for grade K-12 public education facilities generated by the UCI on-campus population is associated primarily with married student households, faculty/researcher households, and staff households. Through IUSD's open enrollment program, UCI-based students may attend various schools in the district (LRDP FEIR Vol I page 4.11-10).

As stated in the Project Description, the new building would provide space for the UCI Alumni Association and would accommodate staff already working on the campus, as well as those hired to meet future needs. It is not known what percentage of the current and whether future staff would include heads of households with school-age children that attend Irvine Unified School District (IUSD) schools. To the extent that future Association staff positions do attract such new households to the area, there could be increased enrollment within IUSD elementary, middle, and high schools, indirectly attributed to the proposed project.

Discussion of Potential Project Impacts:
As discussed in the LRDP FEIR, implementation of the campus development plan could result in an increase in the number of school age children on campus. Although, as stated above, the project could house staff with school-age children, the LRDP FEIR concluded that new K-12 students generated by implementation of the 2007 LRDP would represent a small percentage of IUSD enrollments, which may not even be perceivable within its yearly student enrollment fluctuations. In addition, on a regional scale the LRDP FEIR indicates that although school-age children of new UCI staff may create additional demands for public school seating capacity, it is unlikely that any additional enrollment attributed to the 2007 LRDP would result in the need for new facilities or substantial alterations that would result in adverse physical impacts. In addition, the majority of the campus population including staff would live in new or existing homes in a variety of off-campus locations in Orange and Los Angeles Counties. These homes would be served by school districts, which provide school service that has already been accounted for in the development and operation of schools serving those communities. Hence, the demand for schools would follow the demand for housing, rather than increased UCI population. Thus, the 2007 LRDP, including the project, was determined to have a less than significant impact on schools and no mitigation is required (LRDP FEIR Vol I pages 4.11-10-11).

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination After All Mitigation:
Not applicable

12.d) Parks: Less Than Significant
Relevant Elements of Project
As stated in the Project Description, the project would construct new space for the Association, which currently operates from the Phineas Banning Alumni House, in an already urbanized area of the campus and is not within an area planned in the LRDP for a park. Recreation facilities are readily available on campus and include Aldrich Park, the Crawford Athletics Complex, and the Anteater Recreation Center (ARC). Additionally, there are several city and county parks in the vicinity of the campus, including a regional park, two community parks, and several neighborhood parks (LRDP FEIR Vol I page 4.12-3).

Discussion of Potential Project Impacts
As the proposed Center would provide new space for an existing campus use it would not be anticipated to result in a substantial increase in demand for parks, either on or off campus, which would require construction of new facilities, the construction of which could cause significant environmental impacts. Any future campus staff hired to work in the Center would not exceed the amount foreseen by the 2007 LRDP and not represent the type of population increase likely to trigger demand for new parks either on or off campus. Further, the 2007 LRDP FEIR determined that because UCI offers numerous recreational opportunities, there would be no requirement to construct or expand off-campus recreational facilities (LRDP FEIR Vol I page 4.12-6).

Applicable LRDP EIR Mitigation Measures Incorporated In The Project
None required

Significance Determination After LRDP EIR Mitigation Measures
Not applicable

Additional Project-Level Mitigation Measures
None required

Significance Determination after All Mitigation
Not applicable

12.e) Other Public Facilities: No Impact
Relevant Elements of Project:
There are no public facilities proposed within the Center.

Discussion of Potential Project Impacts:
As stated previously, the proposed project would construct a new building on an existing parking, lot consistent with the land use policies contained in the 2007 LRDP, and would not require physical alterations to any other UCI campus facilities or have an affect upon governmental facilities off campus. Thus, the project would not result in any substantial adverse physical impact because of increased demand for other public facilities services that result in the need for new or physically altered public facilities, the construction of which could cause significant environmental impacts.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

12.f) Create Other Public Service Impacts: No Impact

Relevant Elements of Project:
As stated previously, the proposed project would construct a new building on the UCI campus to provide additional space for the Association, which currently operates from the Phineas Banning Alumni House.

Discussion of Potential Project Impacts:
The proposed Center is consistent with the land use policies contained in the 2007 LRDP and would not generate any unique demands for other public services that could result in physical environmental impacts.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

13. RECREATION

Issues	(A) Potentially Significant Impact	(B) Project Impact Adequately Addressed in LRDP EIR	(C) Less Than Significant with Project-level Mitigation Incorporated	(D) Less Than Significant Impact	(E) No Impact
Would the Project:					
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				✓	
b) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?					✓

13.a) Physically Deteriorate Existing Facilities: Less Than Significant

Relevant Elements of Project:

As stated in the Project Description, the project would construct a new building for alumni program activities. Recreation facilities are readily available on campus and include Aldrich Park, the Crawford Athletics Complex, and the ARC. Off-campus recreation opportunities include numerous city, county, and state parks, and private health clubs located in the campus vicinity (LRDP FEIR Vol I page 4.12-3).

Discussion of Potential Project Impacts:

Although the proposed project would provide space for future UCI staff, it would not result in an increase of the campus employee population foreseen by the 2007 LRDP, nor trigger demand for new recreational facilities either on or off campus. The LRDP FEIR determined that implementation of the 2007 LRDP would not result in substantial deterioration of on-campus recreational facilities and that the use of off-campus recreation facilities as result of UCI's on-campus population increase in association with implementation of the 2007 LRDP would be limited based on the availability of the on campus facilities. Thus, the LRDP FEIR concluded that implementation of the 2007 LRDP would is anticipated to have a less than significant impact related to the physical deterioration of parks and other recreational facilities (LRDP FEIR Vol I pages 4.12-5/6).

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:

None required

Significance Determination After LRDP EIR Mitigation Measures:

Not applicable

Additional Project-Level Mitigation Measures:

None required

Significance Determination After All Mitigation:
Not applicable

13.b) Construction of Recreational Facilities: No Impact

Relevant Elements of Project:
As stated previously, the project would construct a new campus building for the Association, which currently operates from the Phineas Banning Alumni House. The project does not include construction of recreation facilities.

Discussion of Potential Project Impacts:
As the proposed Center is a small facility that would provide new space for an existing campus use it would not be anticipated to result in a substantial increase in demand for parks, either on or off campus, which would require construction of new facilities, the construction of which could cause significant environmental impacts. Also as discussed previously, any future campus staff hired to work in the Center would not be likely to trigger demand for new recreational facilities, either on or off campus. Further, the LRDP FEIR concluded that because UCI offers its staff numerous recreational opportunities, there would be no requirement to construct or expand off-campus recreational facilities in association with implementation of the 2007 LRDP (LRDP FEIR Vol I pages 4.12-6-7).

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:
None mitigation measures are required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination After All Mitigation:
Not applicable

14. TRANSPORTATION/TRAFFIC

Issues	(A) Potentially Significant Impact	(B) Project Impact Adequately Addressed in LRDP EIR	(C) Less Than Significant with Project-level Mitigation Incorporated	(D) Less Than Significant Impact	(E) No Impact
Would the project:					
a) 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?		✓			
b) 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?					✓
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?					✓
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?					✓
e) Result in inadequate emergency access?					✓
f) Conflict with adopted policies plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?					✓

14.a) Conflict with Effectiveness Measures: Project Impact Adequately Addressed in LRDP EIR

Relevant Elements of Project:

As stated in the Project Description, the proposed project would construct a new building for the UCI Alumni Association and include elements supporting alternative transportation. Construction of the project, also noted in the Project Description, would not require an encroachment permit from the California Department of Transportation.

Discussion of Potential Project Impacts:

A traffic evaluation was prepared for this Initial Study (Appendix E) to analyze the proposed Center's impact on the campus and surrounding transportation network under project build-out conditions. Although, as noted in the Project Description, the Center would provide space for existing Association programs, because the Phineas Banning Alumni House would be reassigned in the future to other UCI functions, trips generated by the Center were considered new. Consistent with the traffic study prepared for the 2007 LRDP (the applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system), the evaluation derived its data from the UCI Main Campus Traffic Model (MCTM) and the Irvine Transportation Analysis Model (ITAM). The MCTM is based upon the future campus land use identified in the 2007 LRDP, and is used for evaluating the project's potential impact to and for forecasting future traffic volumes on the campus roadway system. The ITAM is the principal tool used for transportation planning in the City of Irvine and was used in reference to off campus portions of the circulation network included in the LRDP traffic study (i.e., general distribution on surrounding roadways for project trip assignment purposes) (LRDP FEIR Vol I page 4.13-27).

The project traffic evaluation indicates that the proposed Center will generate approximately 188 average daily trips (ADT) of which 11 and 17 (approximately six and nine percent of the ADT) will be in the AM and PM peak hours, respectively. Thus, based upon the City of Irvine's Traffic Impact Analysis Guidelines (August 2004), which require traffic studies for discretionary projects producing 50 or more AM or PM peak hour trips or limited scope studies if project related trips exceed a site's trip/budget cap, it was determined that a detailed traffic study was not necessary. The traffic evaluation concluded that the project's trips would be negligible and not result in significant impacts to nearby intersections and roads, or direct impacts on a State Transportation Facility. Because the proposed Center's anticipated incremental trip increase is minimal (less than one percent of the ADT), the intersection and roadway data presented in the LRDP FEIR traffic analysis as well as current traffic conditions would be generally unaffected.

As discussed in the Project Description, the project is consistent with the LRDP and the analysis completed for this Initial Study has not identified any new impacts not anticipated in the LRDP FEIR related to an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system on or off campus. UCI will continue to implement a range of measures in association with the LRDP to reduce vehicle trips and resulting impacts, and will monitor campus trip generation and distribution, and the performance of UCI Transportation Program intersections in relation to enrollment growth. Implementation of LRDP MM Tra-1J, as noted in the traffic evaluation and provided below would mitigate any impacts related to special events occurring at the center as well as those that may occur should construction of the Center require a road closure.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:

Tra-1J If a campus construction project or a specific campus event requires an on-campus lane or roadway closure, or could otherwise substantially interfere with campus traffic circulation, the contractor or other responsible party will provide a traffic control plan for review and approval by UCI. The traffic control plan shall ensure that adequate emergency access and egress is maintained and that traffic is allowed to move efficiently and safely in and around the campus. The traffic control plan may include measures such as signage, detours, traffic control staff, a temporary traffic signal, or other appropriate traffic controls. If the interference would occur on a public street, UCI shall apply for all applicable permits from the appropriate jurisdiction.

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

14.b) Congestion Management: No Impact

Relevant Elements of Project:
The nearest elements of the Orange County Congestion Management Plan (CMP) highways and arterials network are Jamboree Road and MacArthur Boulevard, located approximately 2.0 miles and 2.7 miles from the project site. CMP monitoring is conducted at the intersections of Jamboree Road/I-405 northbound and southbound ramps, and at Jamboree Road/ MacArthur Boulevard (LRDP FEIR Vol I page 4.13-23).

Discussion of Potential Project Impacts:
As stated in 13.a, project-generated traffic would have no adverse impacts. Consequently, the proposed project would not affect any of the three nearest CMP intersections, and an assessment of impacts under CMP guidelines is not required.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

14.c) Air Traffic Patterns: No Impact

Relevant Elements of Project:
As stated previously, the proposed project site is located approximately 3 miles southwest of JWA. The initial study prepared for the 2007 LRDP concluded that the campus is not situated under the Preferred Arrival or Departure Tracks associated with the airport and that future campus buildings would not penetrate the 100:1 Imaginary Surface for designated flight patterns (LRDP FEIR Vol II page 25).

Discussion of Potential Project Impacts:
Implementation of the 2007 LRDP was determined not to have an affect on existing air traffic patterns or volumes and the issue was adequately addressed in the IS for the LRDP (LRDP FEIR Vol I page 4.13-61).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

14.d) Hazards Due to a Design Feature: No Impact

Relevant Elements of Project:
As stated in the Project Description, the proposed building would be constructed on an already primarily developed site in an urbanized area of the campus and vehicular access would occur via Pereira Drive off Mesa Road. The project would not construct a new roadway on the campus.

Discussion of Potential Project Impacts:
The IS for the 2007 LRDP indicated that design features associated with LRDP implementation projects would be compatible with existing campus transportation plans and adjacent land uses. Thus, the LRDP FEIR determined that no impacts would occur from hazards due to design features or incompatible uses and the issue was adequately addressed in the IS for the LRDP (LRDP FEIR Vol I page 4.13-61).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

14.e) Inadequate Emergency Access: No Impact

Relevant Elements of Project:
As noted in the Project Description, construction of the Center would include street and intersection improvements to local campus roadways; however, existing routes of vehicular access, Mesa Road and Pereira Drive, would not be removed.

Discussion of Potential Project Impacts:
Development associated with implementation of the 2007 LRDP, including the proposed project, is subject to review by the UCI Fire Marshal to ensure that adequate emergency access is incorporated (LRDP FEIR Vol I page 4.13-61). The IS for the LRDP indicated that with review of the proposed project by the UCI Fire Marshal, no impacts related to emergency access would occur (LRDP FEIR Vol I page 4.13-61).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

14.f) Public Transit, Bicycle, or Pedestrian Facilities: No Impact

Relevant Elements of Project:
UCI implements a broad range of infrastructure to promote bicycle travel to and within the campus, including a network of existing and planned on-street bikeways, off-street trails, grade separated crossings, and bicycle parking facilities. Existing and proposed campus bike and pedestrian trails are depicted in the 2007 LRDP on Figures 5-5 (page 74), 5-6 (page 76), and 5.7 (page 77). The proposed project, as noted in the Project Description, would provide elements supporting alternative transportation.

Discussion of Potential Project Impacts:
UCI administers an extensive program of Transportation Demand Management (TDM) measures that encourage the use of alternate modes of transportation, including walking, bicycling, and riding the UCI shuttle, other local shuttle systems, train, or bus. As the project would also provide elements supporting alternative transportation, no impacts related to conflicts with alternative transportation would occur.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

15. UTILITIES AND SERVICE SYSTEMS

Issues	(A) Potentially Significant Impact	(B) Project Impact Adequately Addressed in LRDP EIR	(C) Less Than Significant with Project-level Mitigation Incorporated	(D) Less Than Significant Impact	(E) No Impact
Would the project:					
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?					✓
b) 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?				✓	
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				✓	
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?					✓
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?					✓
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?					✓
g) Comply with applicable federal, state, and local statutes and regulations related to solid waste?					✓

15.a) RWQCB Wastewater Treatment Requirements: No Impact

Relevant Elements of Project:

As noted in Section 5, wastewater from the proposed project would be conveyed to the Irvine Ranch Water District (IRWD) wastewater system and treated at the Michelson Water Reclamation Plant (MWRP). In accordance with the wastewater treatment standards enforced by the Santa Ana Regional Water Quality Control Board, provides a tertiary level of treatment, (LRDP FEIR Vol I page 4.14-1).

Discussion of Potential Project Impacts:

The character of wastewater flows from the proposed project would be the same as those currently

generated from the campus as a whole. No new kinds of wastewater collection or treatment systems or processes would be required to dispose of this project's wastewater. As stated in the LRDP FEIR, UCI would comply with the IRWD's Industrial User Discharge Permit regulations regarding sewage generation quantities and constituents; therefore, the project would not result in a significant impact with regard to wastewater treatment requirements administered by the Regional Water Quality Control Board, no mitigation measures are required (LRDP FEIR Vol I pages 4.14-12/13).

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination After All Mitigation:
Not applicable

15.b) Construction and/or Expansion of Treatment Facilities: Less Than Significant Impact

Relevant Elements of Project:
As stated in the Project Description, utility infrastructure is available in the site vicinity to serve the project. Wastewater treatment and infrastructure are provided as described above in 15.a. Potable water is distributed to the campus from IRWD's transmission system through 8-, 10- and 12-inch water mains to UCI's distribution system and is served by five metered connections. The distribution system consists of two primary pressure zones, IRWD Zones I and III. The proposed project is located within the Zone I system which is served by three 6-inch metered connections (LRDP FEIR Vol I page 4.14-3).

Discussion of Potential Project Impacts:
As stated in the Project Description, the proposed project is consistent with the 2007 LRDP; therefore, demand for water and wastewater would be within existing campus planning projections. The project would not require the construction or expansion of new mainline water or wastewater facilities that would result in significant environmental effects. Connections to the existing infrastructure in the site vicinity would result in minor, short-term less than significant impacts that would occur as part of the project's general site development, no mitigation measures are required.

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination After All Mitigation:
Not applicable

15.c) Stormwater Drainage Facilities: Less Than Significant

Relevant Elements of Project:

As noted in the Project Description, the proposed project site is located in an urbanized area of the campus and is already primarily developed. Stormwater generated by the completed project, also stated in the Project Description, would be collected on site and conveyed to existing facilities, and in-line structural stormwater filtration or other Best Management Practices (BMPs) would be included.

Discussion of Potential Project Impacts:

As stormwater generated by the completed project would be conveyed to existing facilities, construction of new drainage facilities or expansion of existing facilities, which could cause significant environmental effect, is not anticipated. Connection to the existing stormwater drainage facilities would occur concurrently with the overall project construction program and not be anticipated to result in substantial permanent disruption to surface features. Impacts associated with connection to these facilities would therefore be considered less than significant, no mitigation measures are required.

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:

None required

Significance Determination After LRDP EIR Mitigation Measures:

Less Than Significant

Additional Project-Level Mitigation Measures:

None required

Significance Determination After All Mitigation:

Less Than Significant

15.d) Water Supplies: No Impact

Relevant Elements of Project:

As stated previously, the project would construct a new campus building for the Association, which currently operates from the Phineas Banning Alumni House. Potable and reclaimed water on the UCI campus is provided by the IRWD. As noted in the LRDP FEIR, UCI's 2006 average daily domestic water demand was 1.8 million gallons per day (mgd), which is projected to increase to 4.9 mgd with full implementation of the 2007 LRDP. Similarly, UCI's reclaimed water demand, which was 0.6 mgd in 2006, is projected to increase to 1.2 mgd (LRDP FEIR Vol I page 4.14-17-18).

Discussion of Potential Project Impacts:

The IRWD has developed an Urban Water Management Plan, which projects district-wide water supply availability and demand through 2030. IRWD staff in consultation with UCI reviewed projected water service demand related to implementation of the 2007 LRDP for consistency with the UWMP and concluded that water supply reliability would not be compromised. The LRDP FEIR determined that sufficient water supplies are available to serve the implementation of the 2007 LRDP (LRDP FEIR Vol I pages 4.14-17-18). As the proposed Center would provide new space for an existing campus use it would not be anticipated to have a substantial affect on the campus' water demand. Additionally, any future campus staff hired to work in the Center would not exceed the amount foreseen by the 2007 LRDP nor represent the type of population increase likely to trigger demand for increased entitlements. Thus, the proposed project would have no impacts with respect to water supplies, no mitigation measures are required.

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:
None required.

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination After All Mitigation:
Not applicable

15.e) Wastewater Capacity: No Impact

Relevant Elements of Project:
As stated previously, the project would construct a new campus building for the Association, which currently operates from the Phineas Banning Alumni House. As noted in the Project Description, the Center would connect to existing sewer lines, which convey wastewater for treatment at the MWRP operated by the IRWD.

Discussion of Potential Project Impacts:
As the proposed Center would provide new space for an existing campus use it would not be anticipated to have a substantial affect on the campus' demand for wastewater treatment. Additionally, any future campus staff hired to work in the Center would not exceed the amount foreseen by the 2007 LRDP nor represent the type of population increase likely to trigger demand for increased treatment capacity. Thus, the proposed project would have no impacts with respect to wastewater treatment capacity. Further, the 2007 LRDP FEIR determined that the impact to wastewater treatment capacity from implementation of the 2007 LRDP would be less than significant (LRDP FEIR Vol I page 4.14-13).

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

15.f) Landfill Capacity: No Impact

Relevant Elements of Project:
As stated previously, the project would construct a new campus building for the Association, which currently operates from the Phineas Banning Alumni House. Non-hazardous solid waste to be generated by the Center project and throughout the campus is disposed of off-site at the County of Orange Frank R. Bowerman (FRB) Landfill, the primary disposal site for solid waste in the City of Irvine. As noted in the 2007 LRDP FEIR, the landfill is currently permitted to operate and accept refuse approximately through

the year 2022 with a daily maximum of no more than 8,500 tons per day (LRDP FEIR Vol I page 4.14-18).

Discussion of Potential Project Impacts:
This project's construction program would recycle more than 50% of all construction wastes. Further, University policy requires the implementation of a comprehensive program of solid waste reduction and diversion measures including adherence to US Green Building Council LEED "Certified" or equivalent level of Green Building Certification for all new building construction. Additionally, as the proposed Center would provide new space for an existing campus use its operation would not be anticipated to substantially increase the campus' solid waste generation. The LRDP FEIR determined that implementation of the 2007 LRDP would not require mitigation measures related to landfill capacity because the FRB landfill would accommodate an increase in waste generation as a result of implementation of the 2007 LRDP and UCI's participation in waste diversion and recycling programs (LRDP FEIR Vol I page 4.14-18). Thus, the proposed project would have no impacts with respect to solid waste disposal, no mitigation measures are required.

Applicable LRDP EIR Mitigation Measures Incorporated in Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination after All Mitigation:
Not applicable

15.g) Solid Waste Regulations: No Impact

Relevant Elements of Project:
The proposed project building would generate the same types of solid wastes as those generated by other campus buildings. Additionally, as previously stated the proposed Center would provide new space for an existing campus use, which is already generating solid waste. The proposed project would include centralized containers for trash and recyclable materials collection. UC is not subject to Assembly Bill 939 or other local agency regulations pertaining to solid waste management; nonetheless, a sustainability policy, as described in Section 4.14.1.3 of the LRDP FEIR, has been adopted requiring campuses to undertake aggressive programs to reduce solid waste generation and disposal. In adherence to this UC policy and other campus sustainability goals, UCI implements a campus-wide comprehensive waste prevention and recycling program, which works in collaboration with multiple campus entities to promote and implement recycling (LRDP FEIR Vol I page 4.14-19).

Discussion of Potential Project Impacts:
The project would not require any unique waste collection or disposal methods or facilities and would not conflict with or obstruct any federal, state or local programs to reduce solid waste generation and otherwise manage wastes. As UCI will continue to implement, promote, and improve its campus-wide comprehensive waste prevention and recycling program as well as implement the UC Policy on Sustainable Practices, the LRDP FEIR concluded that development under the 2007 LRDP would not result in UCI's failing to comply with relevant statutes and regulations regarding solid waste, no

mitigation measures were deemed necessary related to solid waste regulations (LRDP FEIR Vol I pages 4.14-20/21). Further, as stated above the proposed project would provide new space for the Association, which is already generating solid waste on the campus. Thus, the project would have no impacts with respect to solid waste regulations, no mitigation measures are required.

Applicable LRDP EIR Mitigation Measures Incorporated In The Project:
None required

Significance Determination After LRDP EIR Mitigation Measures:
Not applicable

Additional Project-Level Mitigation Measures:
None required

Significance Determination After All Mitigation:
Not applicable

16. MANDATORY FINDINGS OF SIGNIFICANCE

Issues	(A) Potentially Significant Impact	(B) Project Impact Adequately Addressed in LRDP EIR	(C) Less Than Significant with Project-level Mitigation Incorporated	(D) Less Than Significant Impact	(E) No Impact
The lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR to be prepared for the project where there is substantial evidence, in light of the whole record, that any of the following conditions may occur. Where prior to commencement of the environmental analysis a project proponent agrees to mitigation measures or project modifications that would avoid any significant effect on the environment or would mitigate the significant environmental effect, a lead agency need not prepare an EIR solely because without mitigation the environmental effects would have been significant (per Section 15065 of the State CEQA Guidelines):					
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?				✔	
b) Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?					✔
c) Does the project have impacts that are				✔	

individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of past, present and probable future projects)?					
d) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?				✓	

16.a) Degrade The Environment, Reduce Habitat/Wildlife Populations, Eliminate Examples Of California History: Less Than Significant Impact

The project site, as previously described is in an urbanized area of the campus and is already in primarily developed condition due to its location adjacent the Mesa Court student housing complex and does not contain sensitive biological resources, habitat, or species. No significant environmental impacts of any kind have been identified in the responses to questions regarding project effects organized under the preceding 15 topics. There are no historic resources on the site, and as stated in response to 4.b less than significant impacts would occur with respect to archaeological resources.

16.b) Disadvantage Of Long-Term Environmental Goals: No Impact

The proposed project involves the construction of a new building in accordance with the land use policies established by the 2007 LRDP. It would accomplish key Alumni Association objectives and support the University's sustainability policies through incorporation of numerous green building elements to reduce energy consumption, greenhouse gas emissions, and water demand.

16.c) Cumulatively Considerable Impacts: Less Than Significant Impact

Long-term environmental consequences resulting from the cumulative effect of completing campus development through implementation of the 2007 LRDP were thoroughly evaluated in the 2007 LRDP FEIR. As discussed in the Project Description, the project is consistent with the LRDP's land use policies. No new or more severe impacts not anticipated in the 2007 LRDP FEIR have been identified as a result of the analysis completed for this Initial Study. All project level impacts have been determined to be less than significant or mitigated to a level considered less than significant. The project would not result in cumulatively considerable impacts.

The traffic evaluation prepared for this project concluded that no adverse traffic impacts would occur. Short-term and long-term air quality impacts were assessed relative to the significance thresholds recommended by the South Coast Air Quality Management District. These thresholds are intended to assess project level and cumulative effects, due to the complex chemical and atmospheric interactions that produce air pollution and the regional scale in which these interactions take place. As discussed in the responses to items 2.a-2f, no significant air quality impacts are projected during construction or because of energy consumption, traffic, or property maintenance over the operating life of the project.

No other development or capital projects are currently planned within this area of the West Campus sector during the next approximately two years while this project is under construction. The proposed project would not result in any significant impact that cannot be mitigated to level that is less than significant. The analysis in this IS/MND has determined that the proposed project would have no impacts that are individually limited but that are nonetheless cumulatively considerable, that were not adequately addressed in the LRDP FEIR.

16.d) Direct/Indirect Effects On Humans: Less Than Significant Impact

No significant impacts on human beings have been identified in this Initial Study. Short-term adverse impacts involving construction phase dust, exhaust emissions, and noise would be less than significant with the incorporation and implementation of the identified routine control measures set forth in the LRDP FEIR and the project specific measures included herein. There is no evidence of site contamination with hazardous wastes or substances and this residential development project would not emit hazardous air emissions or involve consumption, generation, transport or disposal of dangerous quantities of hazardous materials or wastes. Access by emergency vehicles would be maintained throughout the construction phases and the developed site would not constrain emergency access.

SUPPORTING INFORMATION SOURCES

California Department of Toxic Substances Control, *EnviroStor: Hazardous Waste and Substances Site List.* June 7, 2011.

City of Irvine, Public Works Department, *Traffic Impact Analysis Guidelines*. August 24, 2004

UCI Campus & Environmental Planning, *University of California Irvine 2007 Long Range Development Plan*. November 2007.

UCI Campus & Environmental Planning, *University of California Irvine 2007 Long Range Development Plan, Final Environmental Impact Report*. November 2007.

INITIAL STUDY PREPARERS

University of California, Irvine, Office of Campus and Environmental Planning (Lead Agency)
Richard Demerjian, Director
Alex Marks, Associate Planner

Austin-Foust Associates, Inc. (Traffic Impact Study)
Krys Saldivar, Project Manager

Discover Works, Inc. (Archeology Study)
Beth Padon, Project Manager

Mestre Greve Associates (Air Quality Study and Greenhouse Gas Assessment)
Matthew Jones, Manager, Environmental Services

APPENDIX A

AIR QUALITY ANALYSIS

Air Quality Assessment For:
UCI Alumni Center

Prepared For:
University of California, Irvine
Campus and Environmental Planning
750 University Tower
Irvine, CA 92697-2325

Submitted By:
Mestre Greve Associates
Division of Landrum and Brown
Fred Greve P.E.
Matthew B. Jones P.E.
27812 El Lazo Road
Laguna Niguel, CA 92677-3915
949•349•0671

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1.0 Existing Air Quality

1.1 Project Description

The proposed UCI Alumni Center would construct a 19,000 to 29,000 gross square foot (gsf) building on the UCI campus on approximately 0.25 acre at the southeast corner of Mesa Road and Pereira Drive. Exhibit 1 presents a vicinity map showing the project location and Exhibit 2 shows an aerial photograph of the project site. Exhibit 2 shows that the construction lay down area for the project would be located to the north of the project, across Pereira Drive in Parking Lot 14.

The proposed Alumni Center is anticipated to include a 250-seat capacity conference space, staff offices, meeting rooms, a workroom, a coffee/tea shop, and various support areas in approximately 11,400 to 18,000 assignable square feet (asf). The building would also include an attached approximately 3,500 square foot exterior patio approximately at ground level. This analysis examines the potential air quality impacts from the largest building space considered (29,000 gsf/18,000 asf) including the exterior patio.

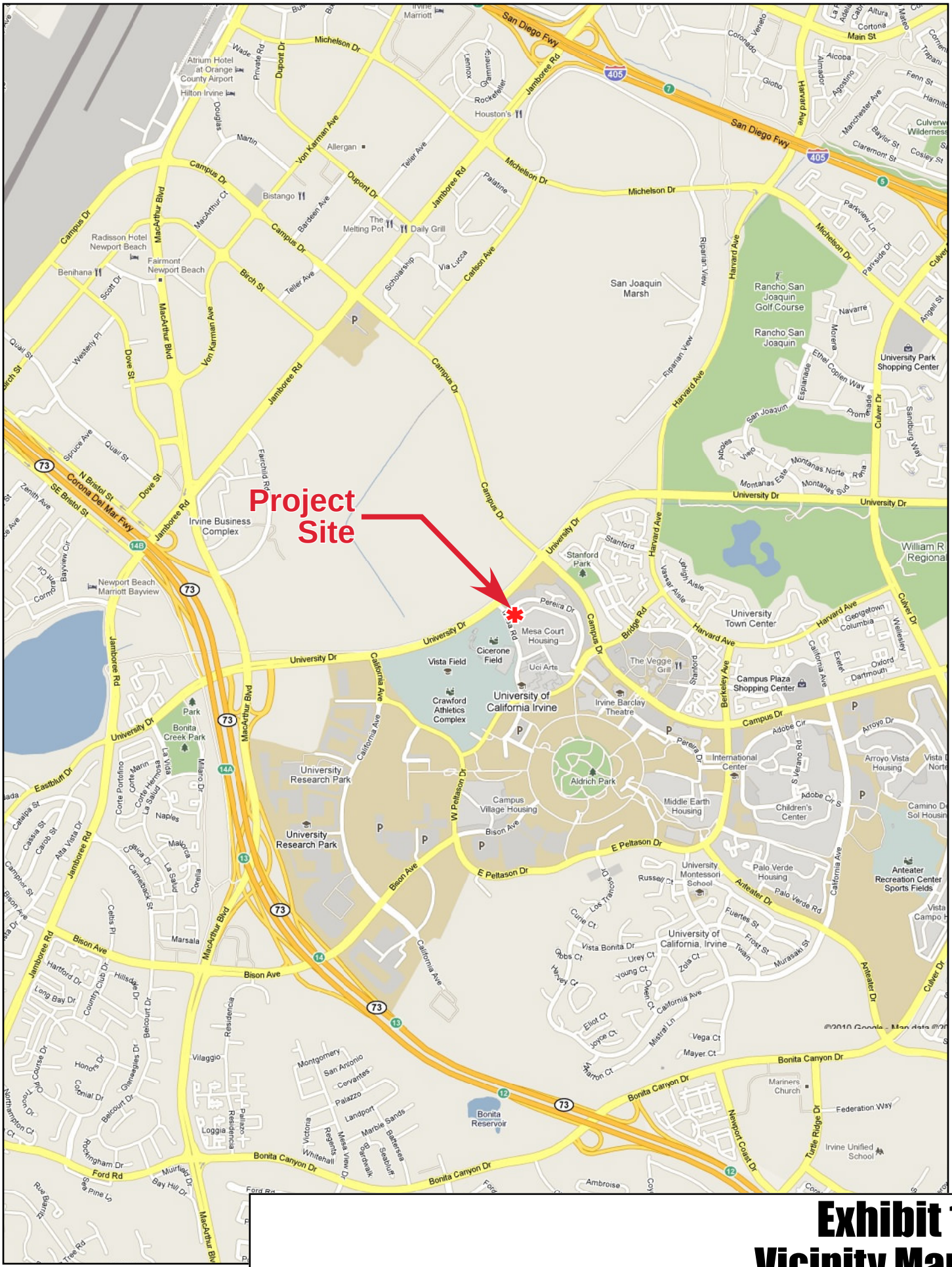
Upon completion, the UCI Alumni Association, which is currently housed in the Phineas Banning Alumni House (4,027 gsf/2,550 asf) located adjacent to Pereira Drive on campus, would be relocated to the proposed building. The vacated space in the Phineas Banning Alumni House will revert to the campus for reassignment.

This report analyzes the potential air quality impacts associated with this project. Regional air quality impacts from construction and operation of the proposed project are analyzed, as are potential local air quality impacts.

1.2 Local, State, and Federal Air Quality Agencies

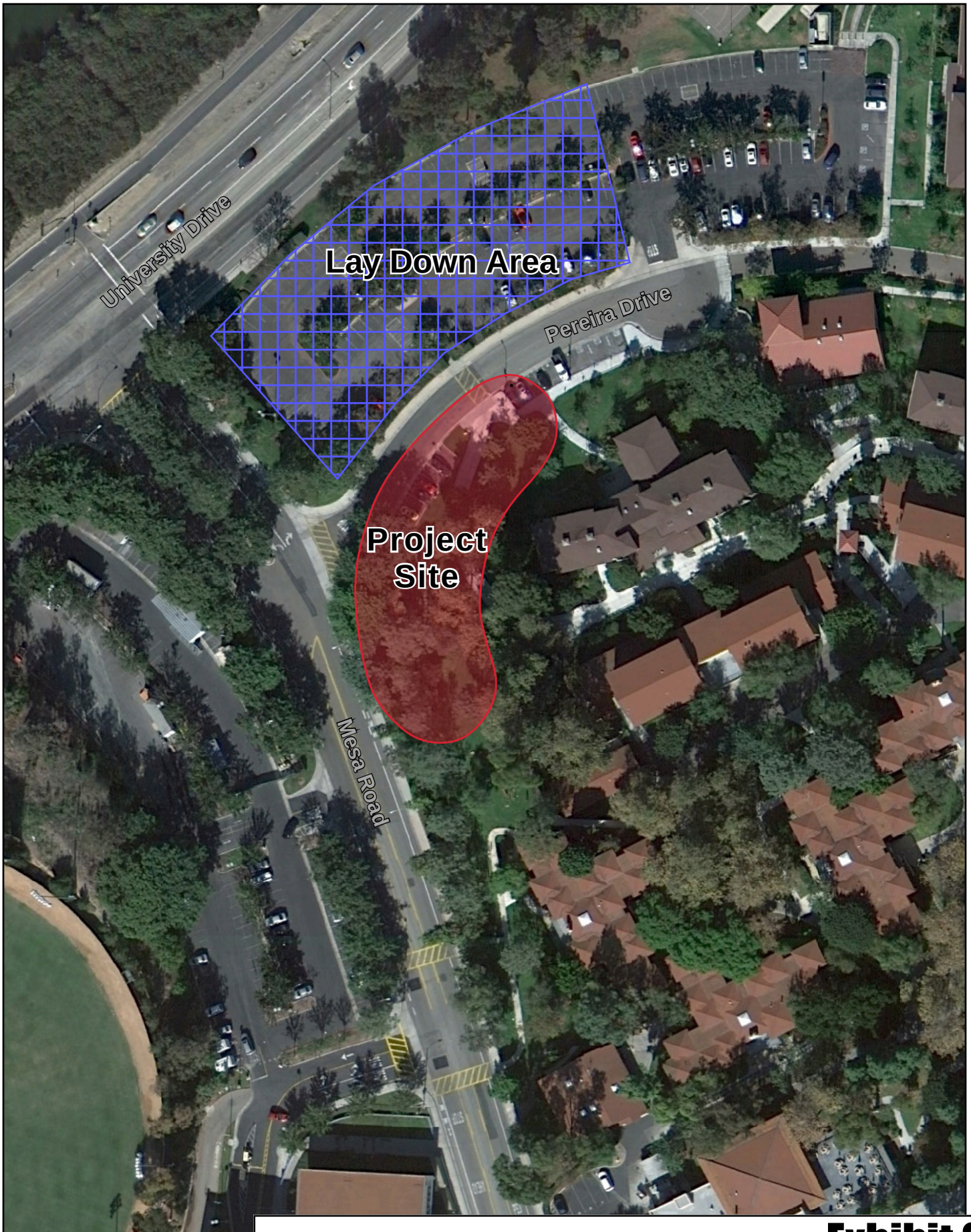
The proposed project is located in the South Coast Air Basin (SCAB). The SCAB is comprised of parts of Los Angeles, Riverside and San Bernardino counties and all of Orange County. The basin is bounded on the west by the Pacific Ocean and surrounded on the other sides by mountains. To the north lie the San Gabriel mountains, to the north and east the San Bernardino Mountains, to the southeast the San Jacinto Mountains and to the south the Santa Ana Mountains. The basin forms a low plain and the mountains channel and confine air flow which trap air pollutants.

The primary agencies responsible for regulations to improve air quality in the SCAB are the South Coast Air Quality Management District (SCAQMD) and the California Air Resources Board (CARB). The Southern California Association of Governments (SCAG) is an important partner to the SCAQMD, as it is the designated metropolitan planning authority for the area and produces estimates of anticipated future growth and vehicular travel in the basin which are used for air quality planning. The SCAQMD sets and enforces regulations for non-vehicular sources of air pollution in the basin and works with SCAG to develop and implement Transportation Control Measures (TCM). TCM measures are intended to reduce and improve vehicular travel and associated pollutant emissions.



Mestre Greve Associates

Exhibit 1
Vicinity Map



N 0' 30' 60'

Mestre Greve Associates

Exhibit 2
Project Site

CARB was established in 1967 by the California Legislature to attain and maintain healthy air quality, conduct research into the causes and solutions to air pollution, and systematically attack the serious problem caused by motor vehicles, which are the major causes of air pollution in the State. CARB sets and enforces emission standards for motor vehicles, fuels, and consumer products. It sets the health based California Ambient Air Quality Standards (CAAQS) and monitors air quality levels throughout the state. The board identifies and sets control measures for toxic air contaminants. The board also performs air quality related research, provides compliance assistance for businesses, and produces education and outreach programs and materials. CARB provides assistance for local air quality districts, such as SCAQMD.

The U.S. Environmental Protection Agency (U.S. EPA) is the primary federal agency for regulating air quality. The EPA implements the provisions of the Federal Clean Air Act (FCAA). This Act establishes national ambient air quality standards (NAAQS) that are applicable nationwide. The EPA designates areas with pollutant concentrations that do not meet the NAAQS as non-attainment areas for each criteria pollutant. States are required by the FCAA to prepare State Implementation Plans (SIP) for designated non-attainment areas. The SIP is required to demonstrate how the areas will attain the NAAQS by the prescribed deadlines and what measures will be required to attain the standards. The EPA also oversees implementation of the prescribed measures. Areas that achieve the NAAQS after a non-attainment designation are redesignated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the NAAQS.

The CCAA required all air pollution control districts in the state to prepare a plan prior to December 31, 1994 to reduce pollutant concentrations exceeding the CAAQS and ultimately achieve the CAAQS. The districts are required to review and revise these plans every three years. The SCAQMD satisfies this requirement through the publication of an Air Quality Management Plan (AQMP). The AQMP is developed by SCAQMD and SCAG in coordination with local governments and the private sector. The AQMP is incorporated into the SIP by CARB to satisfy the FCAA requirements discussed above. The AQMP is discussed further in Section 1.5.

1.3 Criteria Pollutants and Standards

Under the Federal Clean Air Act (FCAA), the U.S. EPA has established National Ambient Air Quality Standards (NAAQS) for six major pollutants; ozone (O_3), respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. These six air pollutants are often referred to as the criteria pollutants. The NAAQS are two tiered: primary, to protect public health, and secondary, to prevent degradation to the environment (i.e., impairment of visibility, damage to vegetation and property).

Under the California Clean Air Act (CCAA), the California Air Resources Board have established California Ambient Air Quality Standards (CAAQS) to protect the health and welfare of Californians. State standards have been established for the six criteria pollutants as well as four additional pollutants; visibility reducing particles, sulfates, hydrogen sulfide, and vinyl chloride.

Table 1 presents the state and national ambient air quality standards. A brief explanation of each pollutant and their health effects is presented follows.

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	State Standards[1,3]	Federal Standards[2] Primary[3,5]	Federal Standards[2] Secondary[3,6]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	--	--
	8 Hour	0.070 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)	Same as Primary
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m^3	150 µg/m^3	Same as Primary
	AAM[6]	20 µg/m^3	--	Same as Primary
Fine Particulate Matter ($PM_{2.5}$)[8]	24 Hour	--	35 µg/m^3	Same as Primary
	AAM[6]	12 µg/m^3	15.0 µg/m^3	Same as Primary
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	None
	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	None
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)	--	--
Nitrogen Dioxide (NO_2)	AAM[6]	0.030 ppm (56 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary
	1 Hour	0.18 ppm (338 µg/m^3)	--	--
Sulfur Dioxide (SO_2)	AAM[6]	--	0.030 ppm (80 µg/m^3)	--
	24 Hour	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)	--
	3 Hour	--	--	0.5 ppm (1,300 µg/m^3)
	1 Hour	0.25 ppm (655 µg/m^3)	--	--
Lead[7,9]	30 day Avg.	1.5 µg/m^3	--	--
	Rolling 3-Month Average	--	0.15 µg/m^3	Same as Primary
Visibility Reducing Particles	8 hour	Extinction coefficient of 0.23 per km -- visibility 10 miles (0.07 per km -- 30 miles for Lake Tahoe)	**No Federal Standards**	
Sulfates	24 Hour	25 µg/m^3		
Hydorgen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)		
Vinyl Chloride[7]	24 Hour	0.01 ppm (26 µg/m^3)		

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, PM_{10}, $PM_{2.5}$, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded.
2. National standards (other than ozone, PM_{10}, $PM_{2.5}$, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25˚ C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25˚ C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
5. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
6. Annual Arithmetic Mean
7. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
8. On March 12, 2008 EPA lowered the 8-hour ozone standard to 0.075 ppm from 0.08 ppm. On January 19, 2010, EPA announced that it was delaying implementation of the 2008 ozone standard and considering adopting a revised primary ozone standard with an 8-hour average concentration in the 0.060 to 0.070 ppm range and a secondary standard based on a new cumulative seasonal standard. The final standard is anticipated to be adopted by August 31, 2010.
9. On October 15, 2008, EPA lowered the lead standard to 0.15 µg/m^3 from 1.5 µg/m^3. Further the averaging time was changed from a calendar quarter to a rolling three-month average. Attainment designations are to be issued by October 2010 with attainment plans due 18 months later.

-- No Standard

1.3.1 Ozone (O_3)

Ozone is a secondary pollutant; it is not directly emitted. Ozone is the result of chemical reactions between volatile organic compounds (VOC) (also referred to as reactive organic gasses (ROG)) and nitrogen oxides (NO_x), which occur only in the presence of bright sunlight. Sunlight and hot weather cause ground-level ozone to form in the air. As a result, it is known as a summertime air pollutant. Ground-level ozone is the primary constituent of smog. Because ozone is formed in the atmosphere, high concentrations can occur in areas well away from sources of its constituent pollutants.

People with lung disease, children, older adults, and people who are active can be affected when ozone levels are unhealthy. Numerous scientific studies have linked ground-level ozone exposure to a variety of problems, including:

- lung irritation that can cause inflammation much like a sunburn;
- wheezing, coughing, pain when taking a deep breathe, and breathing difficulties during exercise or outdoor activities;
- permanent lung damage to those with repeated exposure to ozone pollution; and
- aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis.

Ground-level ozone can have detrimental effects on plants and ecosystems. These effects include:

- interfering with the ability of sensitive plants to produce and store food, making them more susceptible to certain diseases, insects, other pollutants, competition and harsh weather;
- damaging the leaves of trees and other plants, negatively impacting the appearance of urban vegetation, national parks, and recreation areas; and
- reducing crop yields and forest growth, potentially impacting species diversity in ecosystems.

1.3.2 Particulate Matter (PM_{10} & $PM_{2.5}$)

Particulate matter includes both aerosols and solid particles of a wide range of size and composition. Of particular concern are those particles smaller than 10 microns in size (PM_{10}) and smaller than or equal to 2.5 microns ($PM_{2.5}$). The size of the particulate matter is referenced to the aerodynamic diameter of the particulate. Smaller particulates are of greater concern because they can penetrate deeper into the lungs than large particles.

The principal health effect of airborne particulate matter is on the respiratory system. Short term exposures to high $PM_{2.5}$ levels are associated with premature mortality and increased hospital admissions and emergency room visits. Long term exposures to high $PM_{2.5}$ levels are associated with premature mortality and development of chronic respiratory disease. Short-term exposure to high PM_{10} levels are associated with hospital admissions for cardiopulmonary diseases, increased respiratory symptoms and possible premature mortality. The EPA has concluded that available evidence does not suggest an association between long-term exposure to PM_{10} at current ambient levels and health effects.

$PM_{2.5}$ is directly emitted in combustion exhaust and formed from atmospheric reactions between of various gaseous pollutants including nitrogen oxides (NO_x) sulfur oxides (SO_x) and volatile organic compounds (VOC). PM_{10} is generally emitted directly as a result of mechanical processes that crush or grind larger particles or the re suspension of dusts most typically through construction activities and vehicular travels. $PM_{2.5}$ can remain suspended in the atmosphere for days and weeks and can be transported long distances. PM_{10} generally settles out of the atmosphere rapidly and are not readily transported over large distances.

1.3.3 Carbon Monoxide (CO)

Carbon monoxide is a colorless and odorless gas, which in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. Carbon monoxide combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High carbon monoxide concentrations can lead to headaches, aggravation of cardiovascular disease, and impairment of central nervous system functions. Carbon monoxide concentrations can vary greatly over comparatively short distances. Relatively high concentrations are typically found near crowded intersections, along heavily used roadways carrying slow-moving traffic, and at or near ground level. Even under the most severe meteorological and traffic conditions, high concentrations of carbon monoxide are limited to locations within a relatively short distance (i.e., up to 600 feet or 185 meters) of heavily traveled roadways. Overall carbon monoxide emissions are decreasing as a result of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973.

1.3.4 Nitrogen Dioxide (NO_2)

Nitrogen gas, normally relatively inert (unreactive), comprises about 80% of the air. At high temperatures (i.e., in the combustion process) and under certain other conditions it can combine with oxygen, forming several different gaseous compounds collectively called nitrogen oxides (NO_x). Nitric oxide (NO) and nitrogen dioxide (NO_2) are the two most important compounds. Nitric oxide is converted to nitrogen dioxide in the atmosphere. Nitrogen dioxide (NO_2) is a red-brown pungent gas. Motor vehicle emissions are the main source of NO_x in urban areas.

Nitrogen dioxide is toxic to various animals as well as to humans. Its toxicity relates to its ability to form nitric acid with water in the eye, lung, mucus membrane and skin. In animals, long-term exposure to nitrogen oxides increases susceptibility to respiratory infections lowering their resistance to such diseases as pneumonia and influenza. Laboratory studies show susceptible humans, such as asthmatics, exposed to high concentrations of NO_2 can suffer lung irritation and potentially, lung damage. Epidemiological studies have also shown associations between NO_2 concentrations and daily mortality from respiratory and cardiovascular causes and with hospital admissions for respiratory conditions.

NO_x is a combination of primarily NO and NO_2. While the NAAQS only addresses NO_2, NO and the total group of nitrogen oxides is of concern. NO and NO_2 are both precursors in the formation of ozone and secondary particulate matter as discussed in Sections 1.3.1 and 1.3.2. Because of this and that NO emissions largely convert to NO_2, NO_x emissions are typically examined when assessing potential air quality impacts.

1.3.5 Sulfur Dioxide (SO_2)

Sulfur oxides (SO_x) constitute a class of compounds of which sulfur dioxide (SO_2) and sulfur trioxide (SO_3) are of greatest importance. Ninety-five percent of pollution related SO_x emissions are in the form of SO_2. SO_x emissions are typically examined when assessing potential air quality impacts of SO_2. Combustion of fossil fuels for generation of electric power is the primary contributor of SO_x emissions. Industrial processes, such as nonferrous metal smelting, also contribute to SO_x emissions. SO_x is also formed during combustion of motor fuels. However, most of the sulfur has been removed from fuels greatly reducing SO_x emissions from vehicles.

SO_2 combines easily with water vapor, forming aerosols of sulfurous acid (H_2SO_3), a colorless, mildly corrosive liquid. This liquid may then combine with oxygen in the air, forming the even more irritating and corrosive sulfuric acid (H_2SO_4). Peak levels of SO_2 in the air can cause temporary breathing difficulty for people with asthma who are active outdoors. Longer-term exposures to high levels of SO_2 gas and particles cause respiratory illness and aggravate existing heart disease. SO_2 reacts with other chemicals in the air to form tiny sulfate particles which are measured as $PM_{2.5}$. The heath effects of $PM_{2.5}$ are discussed in Section 1.3.2.

1.3.6 Lead (Pb)

Lead is a stable compound, which persists and accumulates both in the environment and in animals. In humans, it affects the blood-forming or hematopoletic, the nervous, and the renal systems. In addition, lead has been shown to affect the normal functions of the reproductive, endocrine, hepatic, cardiovascular, immunological, and gastrointestinal systems, although there is significant individual variability in response to lead exposure. Since 1975, lead emissions have been in decline due in part to the introduction of catalyst-equipped vehicles, and decline in production of leaded gasoline. In general, an analysis of lead is limited to projects that emit significant quantities of the pollutant (i.e. lead smelters) and are not applied to transportation projects.

1.3.7 Visibility Reducing Particulates

Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt. The Statewide standard is intended to limit the frequency and severity of visibility impairment due to regional haze. A separate standard for visibility-reducing particles that is applicable only in the Lake Tahoe Air Basin is based on reduction in scenic quality.

1.3.8 Sulfates(SO_4^{2-})

Sulfates are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and / or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to sulfur dioxide (SO_2) during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

The ARB's sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. Sulfates

are particularly effective in degrading visibility, and, due to fact that they are usually acidic, can harm ecosystems and damage materials and property.

1.3.9 Hydrogen Sulfide (H_2S)

Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. It can also be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation. Breathing H_2S at levels above the standard will result in exposure to a very disagreeable odor. In 1984, an ARB committee concluded that the ambient standard for H_2S is adequate to protect public health and to significantly reduce odor annoyance.

1.3.10 Vinyl Chloride (Chloroethene)

Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Short-term exposure to high levels of vinyl chloride in air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure to vinyl chloride through inhalation and oral exposure causes in liver damage. Cancer is a major concern from exposure to vinyl chloride via inhalation. Vinyl chloride exposure has been shown to increase the risk of angiosarcoma, a rare form of liver cancer in humans.

1.4 South Coast Air Basin Air Quality Attainment Designations

Based on monitored air pollutant concentrations, the U.S. EPA and CARB designate areas relative to their status in attaining the NAAQS and CAAQS respectively. Table 2 lists the current attainment designations for the SCAB. For the Federal standards, the required attainment date is also shown. The Unclassified designation indicates that the air quality data for the area does not support a designation of attainment or nonattainment.

Table 2 shows that the U.S. EPA has designated SCAB as Severe-17 non-attainment for ozone, serious non-attainment for PM_{10}, non-attainment for $PM_{2.5}$, and attainment/maintenance for CO and NO_2. The basin has been designated by the state as non-attainment for ozone, PM_{10}, and $PM_{2.5}$. For the federal designations, the qualifiers, Severe-17 and Serious, affect the required attainment dates as the federal regulations have different requirements for areas that exceed the standards by greater amounts at the time of attainment/non-attainment designation. The SCAB is currently designated as in attainment of the Federal SO_2 and lead NAAQS as well as the state CO, NO_2, SO_2, lead, hydrogen sulfide, and vinyl chloride CAAQS. CARB has proposed redesignating the basin as non-attainment for state NO_2 AAQS and the Los Angeles County portion of SCAB as non-attainment for both the state and federal standards. These proposed redesignations are discussed further below.

In July 1997, U.S. EPA issued a new ozone NAAQS of 0.08 ppm using an 8-hour averaging time. Implementation of this standard was delayed by several lawsuits. Attainment/non-attainment designations for the new 8-hour ozone standard were issued on April 15, 2004 and became effective on June 15, 2005. The SCAB was designated severe-17 non-attainment, which requires attainment of the Federal Standard by June 15, 2021. As a part of the designation, the EPA announced that the 1-hour ozone standard would be revoked in June of 2005. Thus, the 8-hour ozone standard attainment deadline of 2021 supersedes and replaces the previous 1-hour ozone standard attainment deadline of 2010.

Table 2
Designations of Criteria Pollutants for the SCAB

Pollutant	Federal	State
Ozone (O_3)	Severe-17 Nonattainment (2021)	Nonattainment
Respirable Particulate Matter (PM_{10})	Serious Nonattainment (2006)	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment (2014 or 2019 with extension)	Nonattainment
Carbon Monoxide (CO)	Attainment/Maintenance (2000)	Attainment
Nitrogen Dioxide (NO_2)	Attainment/Maintenance (1995)	Attainment*
Sulfur Dioxide (SO_2)	Attainment	Attainment
Lead	Attainment*	Attainment*
Visibility Reducing Particles	n/a	Unclassified
Sulfates	n/a	Unclassified
Hydrogen Sulfide	n/a	Attainment
Vinyl Chloride	n/a	Attainment

* Proposed for redesignation to non-attainment

The SCAQMD and CARB requested that U.S. EPA change the nonattainment status of the 8-hour ozone standard to extreme and this request was granted in August 2009. This change of classifications extends the attainment date by three years to 2024 but also requires the SCAQMD to incorporate more stringent air quality regulations such as lower permitting thresholds and implementing reasonably available control technologies at more sources. This change also allows for the use of undefined reductions (i.e. "black box") based on the anticipated development of new control technologies or improvement of existing technologies in the attainment plan.

On March 12, 2008, U.S. EPA announced that it was lowering the 8-hour average NAAQS for ozone to 0.075 ppm. On September 19, 2009 the U.S. EPA announced that it would re-consider the revised standard to ensure that the standards are clearly grounded in science, protect public health with an adequate margin of safety, and are sufficient to protect the environment. On January 19, 2010, U.S. EPA announced that it was considering adopting a primary ozone standard with an 8-hour averaging time in the 0.060 to 0.070 ppm range. Further, a cumulative seasonal standard was proposed as the secondary standard to provide increased protection against ozone related adverse impacts on vegetation and forested ecosystems. The final revised standard is expected to be announced by August 31, 2010.

On April 28, 2005, CARB adopted an 8-hour ozone standard of 0.070 ppm. The California Office of Administrative Law approved the rulemaking and filed it with the Secretary of State on April 17, 2006. The standard became effective on May 17, 2006. California has retained the 1-hour concentration standard of 0.09 ppm. To be redesignated as attainment by the state the basin will need to achieve both the 1-hour and 8-hour ozone standards.

The SCAB was designated as moderate non-attainment of the PM_{10} standards when the designations were initially made in 1990 with a required attainment date of 1994. In 1993, the basin was redesignated as serious non-attainment with a required attainment date of 2006 because it was apparent that the basin could not meet the PM_{10} standard by the 1994 deadline. At this time, the Basin has met the PM_{10} standards at all monitoring stations except the western Riverside where the annual PM_{10} standard has not been met. However, on September 21, 2006, the U.S. EPA announced that it was revoking the annual PM_{10} standard as research had indicated that there were no considerable health effects associated with long-term exposure to PM_{10}. With this change, the basin is technically in attainment of the federal PM_{10} standards. SCAQMD has begun holding public hearings to consider a request to re-designate the basin as attainment for PM_{10} and to develop a maintenance plan. In July 1997, U.S. EPA issued NAAQS for fine particulate matter ($PM_{2.5}$). The $PM_{2.5}$ standards include an annual standard set at 15 micrograms per cubic meter ($\mu g/m^3$), based on the three-year average of annual mean $PM_{2.5}$ concentrations and a 24-hour standard of 65 $\mu g/m^3$, based on the three-year average of the 98th percentile of 24-hour concentrations. Implementation of these standards was delayed by several lawsuits. On January 5, 2005, EPA took final action to designate attainment and nonattainment areas under the NAAQS for $PM_{2.5}$ effective April 5, 2005. The SCAB was designated as non-attainment with an attainment required as soon as possible but no later than 2010. EPA may grant attainment date extensions of up to five years in areas with more severe $PM_{2.5}$ problems and where emissions control measures are not available or feasible. It is likely that the SCAB will need this additional time to attain the standard

On September 21, 2006, the U.S. EPA announced that the 24-hour $PM_{2.5}$ standard was lowered to 35 $\mu g/m^3$. The EPA announced attainment/non-attainment designations for the revised $PM_{2.5}$ standard on November 13, 2009 with an effective date of December 14, 2009. The SCAB was found to be in non-attainment of the standard. The SCAQMD has three years from the effective date to submit a plan demonstrating attainment of the standard by December 2014, although an extension of up to five years could be granted by the U.S. EPA.

The Federal attainment deadline for CO was to be December 31, 2000 but at that time the basin still had measured exceedances of the CO NAAQS. The basin was granted an extension to attain the standard and has not had any violations of the federal CO standards since 2002. In March 2005, the South Coast AQMD adopted a CO Redesignation Request and Maintenance Plan. On May 11, 2007, the U.S. EPA announced approval of the Redesignation Request and Maintenance Plan and that, effective June 11, 2007, the SCAB would be re-designated as attainment/maintenance for the federal CO NAAQS. The plan provides for maintenance of the federal CO air quality standard until at least 2015 and commits to revising the Plan in 2013 to ensure maintenance through 2025.

The federal annual NO_2 standard was met for the first time in 1992 and has not been exceeded since. The SCAB was redesignated as attainment for the federal NO_2 AAQS in 1998. The basin will remain a maintenance/attainment area until 2018, assuming the federal NO_2 standard is not exceeded. The basin was redesignated from non-attainment of the state NO_2 standard in 1994 and has been designated as attainment since that time. In 2007 CARB revised the state 1-hour NO_2 standard from 0.25 ppm to 0.18 ppm and established an annual average NO_2 standard of 0.030 ppm. In November 2009, CARB proposed redesignating the SCAB as non-attainment for the state NO_2 standard due to exceedances of the annual average standard measured at the Lynwood, Pomona, and Upland monitoring stations in the 2006-2008 time period. The Lynwood and Upland stations exceeded the standard in 2006 but were below the standard in 2007 and 2008. The Pomona station exceeded the standard in 2006 and 2007 but was below the

standard in 2008. In all cases the exceedances were due to levels 0.001 ppm above the standard. The 1-hour standard has not been exceeded in the SCAB.

Generally, lead concentrations throughout the SCAB have been lower than the state and federal lead standards since the early 1980's due to the removal of lead from automobile fuel. In 1990, U.S. EPA requested the SCAQMD to collect lead concentrations near several large lead handling (battery recycling) facilities and in 1992 the SCAQMD adopted Rule 1420 to reduce emissions of lead from non-vehicular sources. Rule 1420 requires facilities emitting more than 10 tons per year of lead to monitor lead concentrations and facilities emitting between 2 and 10 tons per year to either monitor or model lead concentrations. This monitoring showed exceedances of the state lead AAQS at one location next to a battery recycling facility in Los Angeles County. Because the standard was exceeded at only one location the state is proposing redesignating the Los Angeles County portion of the SCAB as non-attainment of the Lead standard. This designation is expected to be finalized in 2010.

On November 12, 2008 the U.S. EPA issued final revisions to the NAAQS for lead. The standard was revised from 1.5 $\mu g/m^3$ to 0.15 $\mu g/m^3$ and the averaging time was changed from a calendar quarter to a rolling three-month average. The revised standard also changed the requirements for monitoring of lead concentrations. Monitoring is now required for any facility emitting more than 1 ton per year of lead. Existing monitoring shows exceedances of the revised lead NAAQS near two battery-recycling facilities. In addition, the new requirements will require installation of a new monitor near Van Nuys Airport due to the large volume of general aviation aircraft that use leaded aviation gas. This monitoring will begin in 2010.

To implement the new lead NAAQS, U.S. EPA requested states to recommend designations. On September 24, 2009, CARB recommended re-designating the Los Angeles County portion of SCAB to non-attainment for the 2008 Lead NAAQS due to the exceedances measured near battery recycling facilities discussed above. Final designations of all attainment, nonattainment, and unclassifiable areas will be effective no later than January 2012. U.S. EPA intends to complete initial designations as soon as possible. State Implementation Plans demonstrating attainment of the standards by January 2017, will need to be submitted to U.S. EPA by June 2013.

Table 2 shows that SCAB is currently designated as in attainment of the SO_2 and lead NAAQS as well as the state CO, NO_2, SO_2, lead, hydrogen sulfide, and vinyl chloride CAAQS. Generally, SO_2, hydrogen sulfide, and vinyl chloride are not considered a concern in the SCAB. Lead concentrations are only a concern near facilities with considerable lead emissions. As discussed above, annual NO_2 concentrations slightly exceed the state annual standard in a few locations in the basin. The primary pollutants of concern in the SCAB are Ozone and particulate matter.

1.5 Air Quality Management Plan (AQMP)

As, discussed above, the CAA requires plans to demonstrate attainment of the NAAQS for which an area is designated as nonattainment. Further, the CCAA requires SCAQMD to revise its plan to reduce pollutant concentrations exceeding the CAAQS every three years. In the SCAB, SCAQMD and SCAG, in coordination with local governments and the private sector, develop the Air Quality Management Plan (AQMP) for the air basin to satisfy these requirements. The AQMP is the most important air management document for the basin because it provides the blueprint for meeting state and federal ambient air quality standards.

The 2003 AQMP is the current Federally approved applicable air plan for ozone. The 2003 AQMP was adopted locally on August 1, 2003, by the governing board of the SCAQMD. CARB adopted the plan as part of the California State Implementation Plan on October 23, 2003. The PM_{10} attainment plan from the 2003 AQMP received final approval from the U.S. EPA on November 14, 2005 with an effective date of December 14, 2005. As of February 14, 2007 the U.S. EPA had not acted on the ozone attainment plan of the 2003 AQMP. On this date, CARB announced that it was rescinding the ozone attainment plan from the 2003 AQMP with the intention to expedite approval of the 2007 AQMP. However, on March 10, 2009 the U.S. EPA announced partial approval and partial disapproval of the ozone attainment plan of the 2003 AQMP effective April 9, 2009. The portions disapproved by the U.S. EPA were determined to not be required by the FCAA because they represented revisions to previously approved AQMP elements. Even with the disapproved elements the 2003 AQMP satisfied the requirements of the EPA and did not trigger sanction clocks. The 2007 AQMP was adopted by the SCAQMD on June 1, 2007. CARB adopted the plan as a part of the California State Implementation Plan on September 27, 2007. The State Implementation Plan was submitted to the U.S. EPA on November 16, 2007. The U.S. EPA has not taken action on the 2007 AQMP at this time.

The 2007 AQMP was prepared in response to the implementation of the federal $PM_{2.5}$ and 8-hour ozone NAAQS. The implementation of the new standards required completion of plan addressing attainment of the 8-hour ozone standard by June of 2007 and completion of a plan addressing the $PM_{2.5}$ standard one year later, in April of 2008. SCAQMD determined that it was most prudent to prepare an integrated plan to address both pollutants. The attainment date for the $PM_{2.5}$ NAAQS is earlier (i.e., 2015) than the attainment date for the ozone NAAQS (i.e., 2021) and the district felt that delaying a plan for $PM_{2.5}$ by a year could jeopardize the basin's ability to attain the standard. Further, development of a plan for ozone would have likely focused on lowering VOC emissions, which would have no effect on $PM_{2.5}$ levels. Reductions in NO_x emissions result in reductions in both ozone and $PM_{2.5}$ levels.

The 2007 AQMP demonstrates attainment of the 65 $\mu g/m^3$ 24-hour average and 15$\mu g/m^3$ annual average $PM_{2.5}$ standards by the 2015 deadline. However, it should be noted that in September of 2006, the U.S. EPA lowered the 24-hour $PM_{2.5}$ NAAQS to 35 $\mu g/m^3$. An attainment plan for the revised standard will need to be completed by December 14, 2013. The deadline for meeting the revised standard will not change (i.e., April 2015) but five year extensions to attain the standard may be granted by the U.S. EPA.

The 2007 AQMP determined that the basin would not be able to achieve the 0.08-ppm 8-hour ozone standard by the 2021 deadline without the use of "black box" measures. "Black box" measures anticipate the development of new technologies or improving existing control technologies that are not well defined at the time the plan is prepared. However, the use of "black box" measures is not allowed for areas with a Severe-17 non-attainment designation. Because of this the SCAQMD and CARB requested to the U.S. EPA to "bump up" the basin's classification to Extreme with the submittal of the 2007 AQMP. This request was granted in

August 2009 and will extend the required attainment date to 2024 and allow the use of "black box" measures. The "black box:" reductions needed for ozone attainment are estimated to be 190 tons per day (tpd) of NO_x and 27 tpd of VOC. These reductions represent a 17% reduction in 2002 average daily NO_x emissions and a 3% reduction in 2002 average daily VOC emissions.

It should be noted that on March 12, 2008, the U.S. EPA lowered the 8-hour ozone standard to 0.075 ppm. This effectively lowers the standard 0.009 ppm as 0.084 ppm is considered meeting the 0.08 ppm standard. A plan to attain the revised standard will need to be completed by 2013. Attainment deadlines for the revised standard have not been established and may vary depending on the severity of the exceedances.

Implementation of the 2007 AQMP is based on a series of control measures and strategies that vary by source type (i.e., stationary or mobile) as well as by the pollutant that is being targeted. Short-term and mid-term control measures are defined to achieve the $PM_{2.5}$ standard by 2015. These measures are designed to also contribute to reductions in ozone levels. Additional, long-term measures are defined to attain the 8-hour ozone standard by 2024. The measures rely on actions to be taken by several agencies that have statutory authority to implement such measures. Each control measure will be brought for regulatory consideration in a specified time frame. Control measures deemed infeasible will be substituted by other measures to achieve the total emission reduction target for each agency.

The plan focuses on control of sulfur oxides (SO_x), directly emitted $PM_{2.5}$, and nitrogen oxides (NO_x) to achieve the $PM_{2.5}$ standard. Achieving the 8-hour ozone standard builds upon the $PM_{2.5}$ attainment strategy with additional NO_x and VOC reductions. The control measures in the 2007 AQMP are based on facility modernization, energy efficiency and conservation, good management practices, market incentives/compliance flexibility, area source programs, emission growth management and mobile source programs. In addition, CARB has developed a plan of control strategies for sources controlled by CARB (i.e. on-road and off-road motor vehicles and consumer products). Further, Transportation Control Measures (TCM) defined in SCAG's Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP) are needed to attain the standards.

The 2007 AQMP includes 30 short-term and mid-term stationary and 7 mobile source control measures proposed for implementation by the district that are applicable to sources under their jurisdiction. Nine of these measures were included in the 2003 AQMP and have been updated or revised. Twenty-eight new measures are proposed based on replacement of the District's long-term reduction measures from the 2003 AQMP with more defined control measures or development of new control measures. Measures include; regulations to reduce VOC emissions from coatings, solvents, petroleum operations, and cutback asphalt; measures to reduce emissions from industrial combustion sources as well as residential and commercial space heaters; a measure to offset potential emission increases due to changes in natural gas specifications; localized control of PM emission hot spots; regulation of wood burning fireplaces and wood stoves; reductions from under-fired char broilers; reducing urban heat island through lighter colored roofing, and paving materials and tree planting programs; energy efficiency and conservation programs; and emission reduction from new or redevelopment projects through regulations that will establish mitigation options to be implemented in such project. The specific measures are discussed in Chapter 4 and presented in detail in Appendix IV-A of the 2007 AQMP.

The TCMs defined in the RTP and RTIP fall into three categories, High Occupancy Vehicle measures, Transit and System Management Measures and Information-based Transportation

Strategies. The High Occupancy Vehicle (HOV) Strategy attempts to reduce the proportion of commute trips made by single occupancy vehicles which constitute 72% of all home work trips according to the 200 U.S. Census. Specific measures include new HOV lanes on existing and new facilities, HOV to HOV bypasses and High Occupancy Toll (HOT) lanes. The Transit and Systems Management Strategy incentivize the use of transit, alternative transportation modes (e.g., pedestrian and bicycles), and increases in average vehicle occupancy by facilitating vanpools, smart shuttles and similar strategies. Systems management measures include grade separation and traffic signal synchronization projects. The information-based Transportation Strategy relies primarily on the innovative provision of information in a manner that successfully influences the ways in which individuals use the regional transportation system. Providing ride matching to increase ride-sharing and carpool trips and providing near real-time estimates of congestion in an effort to influence persons to defer traveling to a less congested period are examples of the strategy.

In addition to District's measures and SCAG's TCMs, the Final 2007 AQMP includes additional short- and mid-term control measures aimed at reducing emissions from sources that are primarily under state and federal jurisdiction including on-road and off-road mobile sources, and consumer products. Measures committed to be enacted by CARB include (1) improvements to the smog check program, (2) cleaner in-use heavy duty truck emission regulations, (3) increased regulations on goods movement sources including ships, harbor craft, and port trucks, (4) regulations for cleaner in-use off-road equipment including agricultural equipment, (5) various measures to reduce evaporative VOC emissions from fuel storage and dispensing, (6) tightened emission standards and product reformulation for consumer products that emit VOC's, and (7) reductions in emissions from pesticide applications.

Four long-term "black box" control approaches are presented in the 2007 AQMP. These measures include (1) further reductions from on-road sources by retiring or retrofitting older high-emitting vehicles and accelerated penetration of very low and zero emission vehicles, (2) increased inspection and maintenance (I/M) programs for heavy-duty diesel trucks, (3) further reductions from off-road mobile sources through accelerated turn-over of existing equipment, retrofitting existing equipment and new engine emission standards, and (4) further reductions from consumer product VOC emissions.

The 2007 AQMP identifies four contingency measures that would need to be implemented if milestone emission targets are not met or if the standards are not attained by the required date. While implementation of these measures is expected to reduce emissions, there are issues that limit the viability of these measures as AQMP control measures. These issues include the availability of District resources to implement and enforce the measure, cost-effectiveness of the measure, potential adverse environmental impacts, effectiveness of emission reductions, and availability of methods to quantify emission reductions.

1.6 Climate

The climate in and around the project area, as with all of Southern California, is controlled largely by the strength and position of the subtropical high pressure cell over the Pacific Ocean. It maintains moderate temperatures and comfortable humidity, and limits precipitation to a few storms during the winter "wet" season. Temperatures are normally mild, excepting the summer months, which commonly bring substantially higher temperatures. In all portions of the basin, temperatures well above 100 degrees F. have been recorded in recent years. The annual average temperature in the basin is approximately 62 degrees Fahrenheit.

Winds in the project area are usually driven by the dominant land/sea breeze circulation system. Regional wind patterns are dominated by daytime onshore sea breezes. At night the wind generally slows and reverses direction traveling towards the sea. Wind direction will be altered by local canyons, with wind tending to flow parallel to the canyons. During the transition period from one wind pattern to the other, the dominant wind direction rotates into the south and causes a minor wind direction maximum from the south. The frequency of calm winds (less than 2 miles per hour) is less than 10 percent. Therefore, there is little stagnation in the project vicinity, especially during busy daytime traffic hours.

Southern California frequently has temperature inversions which inhibit the dispersion of pollutants. Inversions may be either ground based or elevated. Ground based inversions, sometimes referred to as radiation inversions, are most severe during clear, cold, early winter mornings. Under conditions of a ground-based inversion, very little mixing or turbulence occurs, and high concentrations of primary pollutants may occur local to major roadways. Elevated inversions can be generated by a variety of meteorological phenomena. Elevated inversions act as a lid or upper boundary and restrict vertical mixing. Below the elevated inversion, dispersion is not restricted. Mixing heights for elevated inversions are lower in the summer and more persistent. This low summer inversion puts a lid over the South Coast Air Basin (SCAB) and is responsible for the high levels of ozone observed during summer months in the air basin.

1.7 Monitored Air Quality

Air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the air basin. Estimates for the SCAB have been made for existing emissions ("2007 Air Quality Management Plan", June 2007). The data indicate that on-road (e.g.; automobiles, busses and trucks) and off-road (e.g.; trains, ships, and construction equipment) mobile sources are the major source of current emissions in the SCAB. Mobile sources account for approximately 64% of VOC emissions, 92% of NO_X emissions, 39% of direct $PM_{2.5}$ emissions, 59% of SO_X emissions and 98% of CO emissions. Area sources (e.g., architectural coatings, residential water heaters, and consumer products) account for approximately 30% of VOC emissions and 32% of direct $PM_{2.5}$ emissions. Point sources (e.g., chemical manufacturing, petroleum production, and electric utilities) account for approximately 38% of SO_X emissions. Entrained road dust account for approximately 20% of direct $PM_{2.5}$ emissions.

The SCAQMD has divided its jurisdiction into 38 source receptor areas (SRA) with a designated ambient air monitoring station in most areas. The project is located in the Central Orange County Coastal SRA (SRA 20). There are no monitoring stations located in this SRA. The nearest monitoring station to the proposed project is the Costa Mesa-Mesa Verde Drive monitor which is located approximately 6 miles west of the site in the vicinity of the intersection of Harbor Boulevard and Adams Avenue in the City of Costa Mesa. The air pollutants measured at the Costa Mesa-Mesa Verde Drive site include ozone, carbon monoxide (CO), nitrogen dioxide

(NO_2), and Sulfur Dioxide (SO_2). Particulate Matter is not monitored at the Costa Mesa-Mesa Verde Drive station. The nearest monitoring station to the proposed project that measures particulate matter levels is the Mission Viejo station which is located approximately 9 miles east of the project site in the vicinity of the intersection of Los Alisos Boulevard and Trabuco Road. Pollutants monitored at the Mission Viejo Station include ozone, carbon monoxide, and particulate matter (PM_{10} and $PM_{2.5}$).

The air quality data monitored at the Costa Mesa-Mesa Verde Drive station from 2005 to 2008 are presented in Table 3. The air quality data monitored at the Mission Viejo station from 2005 to 2008 are presented in Table 4.The air quality data monitored were obtained from the CARB air quality data website (www.arb.ca.gov/adam/) and the SCAQMD Historical Data website (http://www.aqmd.gov/smog/historicaldata.htm).

The monitoring data presented in Tables 3 and 4 show that particulates and ozone are the air pollutants of primary concern in the project area.

The state 1-hour ozone standard has not been exceeded in the past four years at the Costa Mesa-Mesa Verde Drive Station. The standard has been exceeded between 5 and 13 days each year over the last four years at the Mission Viejo Station. The state 8-hour ozone standard was exceeded between 0 and 5 days each year at the Costa Mesa Mesa Station and between 10 and 25 days each year at the Mission Viejo Station. The federal 8-hour standard was exceeded 3 days in 2008 at the Costa Mesa Station but was not exceeded in 2009, 2007, or 2006. The standard was exceeded between 5 and 15 days each of the past four years at the Mission Viejo Station. The data from the Costa Mesa Station is more representative of conditions near the project site as they are similar distances from the coastline and the Mission Viejo Station is located further inland. Generally ozone concentrations increase further inland.

The Costa Mesa Station ozone monitoring data appears to show an increasing trend in concentrations over the past four years and 2008 was the only year to show exceedances of the federal 8-hour standard. However, reviewing longer-term data shows that maximum ozone levels were the lowest in 2006 since monitoring began in 1990. Measured maximum levels dropped considerably between 1990 and around 1997 and have been generally level with a slight downward trend since that time with the lowest values measured in 2006. Maximum concentrations at the Mission Viejo station have not shown a significant trend, up or down, since.

The federal 24-hour PM_{10} standard has not been exceeded in the past four years at the Mission Viejo Station. Exceedances of the state 24-hour PM_{10} standard were measured a total of 5 days in the past four years. Generally, 1 day of measured exceedances corresponds to an estimate of 6 days of exceedances, but the CARB website did not report the estimated number of days of exceedances in 2006 and 2007. The three exceedances in 2007 were measured in late October and early November and were likely due to wildfires. The fourth highest measured level that year was 38 $\mu g/m^3$. The exceedance in 2006 was measured in early February and must have been due to some unusual conditions because the 2^{nd} highest measured level was 37 $\mu g/m^3$. There does not appear to be a discernable trend in maximum 24-hour PM_{10} levels or the number of days of exceedances when atypical events are excluded.

Table 3
Air Quality Measured at the Costa Mesa-Mesa Verde Drive Monitoring Station

Pollutant	California Standard	National Standard	Year	% Msrd.[1]	Max. Level	Days State Standard Exceeded[2]	Days National Standard Exceeded[2]
Ozone	0.09 ppm	None	2009	98	0.087	0	n/a
1 Hour			2008	96	0.094	0	n/a
Average			2007	95	0.082	0	n/a
			2006	99	0.074	0	n/a
Ozone	0.070 ppm	0.075 ppm	2009	94	0.072	3	0
8 Hour			2008	95	0.080	5	3
Average			2007	92	0.073	2	0
			2006	99	0.062	0	0
CO	20 ppm	35 ppm	2009	96	3	0	0
1 Hour			2008	95	3	0	0
Average			2007	95	5	0	0
			2006	98	4	0	0
CO	9.0 ppm	9 ppm	2009	96	2.16	0	0
8 Hour			2008	95	1.97	0	0
Average			2007	95	3.13	0	0
			2006	98	3.01	0	0
NO_2	0.25 ppm	None	2009	98	0.065	0	n/a
1 Hour			2008	95	0.081	0	n/a
Average			2007	96	0.074	0	n/a
			2006	98	0.101	0	n/a
NO_2	None	0.053 ppm	2009	98	0.013	n/a	No
AAM[3]			2008	95	0.013	n/a	No
			2007	96	0.013	n/a	No
			2006	89	0.015	n/a	No
SO_2	0.04 ppm	0.14 ppm	2009	95	0.004	0	0
1 Hour			2008	94	0.003	0	0
Average			2007	94	0.004	0	0
			2006	92	0.005	0	0
SO_2	None	0.030 ppm	2009	95	0.001	n/a	No
AAM[3]			2008	94	0.001	n/a	No
			2007	94	0.000	n/a	No
			2006	92	0.001	n/a	No

1. Percent of year where high pollutant levels were expected that measurements were made.
2. For annual averaging times a yes or no response is given if the annual average concentration exceeded the applicable standard. For the PM_{10} and $PM_{2.5}$ 24-hour standards, daily monitoring is not performed. The first number shown in Days State Standard Exceeded column is the actual number of days measured that State standard was exceeded. The second number shows the number of days the standard would be expected to be exceeded if measurements were taken every day.
3. Annual Arithmetic Mean

-- Data Not Reported, n/a – no applicable standard

Sources: CARB Air Quality Data Statistics web site www.arb.ca.gov/adam/ accessed 5/3/11
SCAQMD Historical Data Website http://www.aqmd.gov/smog/historicaldata.htm accessed 5/3/11

Table 4
Air Quality Measured at the Mission Viejo Monitoring Station

Pollutant	California Standard	National Standard	Year	% Msrd.[1]	Max. Level	Days State Standard Exceeded[2]	Days National Standard Exceeded[2]
Ozone	0.09 ppm	None	2009	98	0.121	7	n/a
1 Hour			2008	96	0.118	9	n/a
Average			2007	99	0.108	5	n/a
			2006	96	0.123	13	n/a
Ozone	0.070 ppm	0.075 ppm	2009	97	0.095	14	10
8 Hour			2008	97	0.104	25	15
Average			2007	99	0.090	10	5
			2006	96	0.105	23	12
CO	20 ppm	35 ppm	2009	97	2	0	0
1 Hour			2008	96	2	0	0
Average			2007	97	3	0	0
			2006	99	2	0	0
CO	9.0 ppm	9 ppm	2009	97	1.00	0	0
8 Hour			2008	96	1.10	0	0
Average			2007	97	2.16	0	0
			2006	99	1.64	0	0
Respirable	50 $\mu g/m^3$	150 $\mu g/m^3$	2009	96	56.0	1/6	0/0
Particulates			2008	95	42.0	0/0	0/0
PM_{10}			2007	93	74.0	3/--	0/0
24 Hour Average			2006	75	57.0	1/--	0/0
Respirable	20 $\mu g/m^3$	None	2009	96	23.2	Yes	n/a
Particulates			2008	95	22.6	Yes	n/a
PM_{10}			2007	93	23.0	Yes	n/a
AAM[3]			2006	75	21.1	Yes	n/a
Fine	None	35 $\mu g/m^3$	2009	95	39.2	n/a	1/3.5
Particulates			2008	99	32.6	n/a	0/0
$PM_{2.5}$			2007	79	46.8	n/a	2/--
24 Hour Average			2006	84	46.9	n/a	1/--
Fine	12 $\mu g/m^3$	15 $\mu g/m^3$	2009	95	9.5	No	No
Particulates			2008	99	10.4	No	No
$PM_{2.5}$			2007	79	--	--	--
AAM[3]			2006	84	--	--	--

1. Percent of year where high pollutant levels were expected that measurements were made.
2. For annual averaging times a yes or no response is given if the annual average concentration exceeded the applicable standard. For the PM_{10} and $PM_{2.5}$ 24-hour standards, daily monitoring is not performed. The first number shown in Days State Standard Exceeded column is the actual number of days measured that State standard was exceeded. The second number shows the number of days the standard would be expected to be exceeded if measurements were taken every day.
3. Annual Arithmetic Mean

-- Data Not Reported, n/a – no applicable standard

Source: CARB Air Quality Data Statistics web site www.arb.ca.gov/adam/ accessed 5/3/11
SCAQMD Historical Data Website http://www.aqmd.gov/smog/historicaldata.htm accessed 5/3/11

The Federal annual average PM_{10} standard has been exceeded the past four years. The annual concentrations show an upward trend, however, the average measured in 2005 was the lowest since monitoring began in 1999 and average annual concentrations in the four years presented are lower than all of the previous years except for 1999.

Exceedances of the federal 24-hour $PM_{2.5}$ standard were measured a total of 4 days in the past four years at the Mission Viejo Station. Generally, 1 day of measured exceedances corresponds to an estimate of 3.5 days of exceedances, but the CARB website did not report the estimated number of days of exceedances in 2006 or 2007. The measured 24-hour $PM_{2.5}$ exceedances occurred during the same time periods as the 24-hour PM_{10} exceedances and were likely due to wildfires in 2007 and some unusual event in February 2006. The third high in 2007 was 34.3 $\mu g/m^3$ and the second high in 2006 was 37.0 $\mu g/m^3$ similar to the maximums measured in 2005 and 2008 when there were no exceedances. There does not appear to be a discernable trend in maximum 24-hour $PM_{2.5}$ levels or the number of days of exceedances when atypical events are excluded.

The state and federal annual average $PM_{2.5}$ standards have not been exceeded in the past four years at the Mission Viejo Station. There does not appear to be a discernable trend in annual $PM_{2.5}$ concentrations at the Mission Viejo Station.

The monitored data shown in Tables 3 and 4 shows that other than ozone, PM_{10}, and $PM_{2.5}$ exceedances as mentioned above, no State or Federal standards were exceeded for the remaining criteria pollutants.

2.0 Potential Air Quality Impacts

Air quality impacts are usually divided into short term and long term. Short-term impacts are usually the result of construction or grading operations. Long-term impacts are associated with the built out condition of the proposed project.

2.1 Thresholds of Significance

2.1.1 Regional Air Quality

In their "1993 CEQA Air Quality Handbook", the SCAQMD has established significance thresholds to assess the impact of project related air pollutant emissions. Table 5 presents these significance thresholds. There are separate thresholds for short-term construction and long-term operational emissions. A project with daily emission rates below these thresholds are considered to have a less than significant effect on regional air quality. It should be noted the thresholds recommended by the SCAQMD are very low and subject to controversy. It is up to the individual lead agencies to determine if the SCAQMD thresholds are appropriate for their projects.

Table 5
SCAQMD Regional Pollutant Emission Thresholds of Significance

	Regional Significance Threshold (lbs/day)					
	CO	VOC	NO_x	PM_{10}	$PM_{2.5}$	SO_x
Construction	550	75	100	150	55	150
Operation	550	55	55	150	55	150

2.1.2 Local Air Quality

As part of the SCAQMD's environmental justice program, attention was focused on localized effects of air quality. In accordance with Governing Board direction, SCAQMD staff developed localized significance threshold (LST) methodology and mass rate look-up tables by source receptor area (SRA) that can be used to determine whether or not a project may generate significant adverse localized air quality impacts. The LST's 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, and are developed based on the ambient concentrations of that pollutant for each source receptor area. The LST methodology is described in "Final Localized Significance Threshold Methodology" dated June 2003 by the SCAQMD and is available at the SCAQMD website (http://aqmd.gov/ceqa/handbook/LST/LST.html).

The LST mass rate look-up tables provided by the SCAQMD allow one to determine if the daily emissions for proposed construction or operational activities could result in significant localized air quality impacts. If the calculated on-site emissions for the proposed construction or operational activities are below the LST emission levels found on the LST mass rate look-up table, then the proposed construction or operation activity will not result in a significant impact on local air quality.

The LST mass rate look-up tables are applicable to the following pollutants only: oxides of nitrogen (NO_X), carbon monoxide (CO), respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$). LST's are derived based on the location of the activity (i.e., the source/receptor area); the emission rates of NO_X, CO, PM_{10}, and $PM_{2.5}$; and the distance to the nearest exposed

individual. This distance is based upon the uses around the project and the Ambient Air Quality Standard (AAQS) averaging times for the pollutants of concern. The shortest AAQS averaging time for CO and NO_2 are for one-hour and the nearest exposed individual is the location where a person could be expected to remain for 1-hour. The shortest averaging time for the PM_{10} and $PM_{2.5}$ AAQS is 24 hours and the nearest exposed individual is the location where a person could be expected to remain for 24-hours. Typically, this is the nearest residential use.

The LST methodology presents mass emission rates for each SRA, project sizes of 1, 2, and 5 acres, and nearest receptor distances of 25, 50, 100, 200, and 500 meters. For project sizes between the values given, or with receptors at distances between the given distances, the methodology uses linear interpolation to determine the thresholds. If receptors are within 25 meters of the site, the methodology document says that the threshold for the 25-meter distance should be used.

The project is located in SRA 20. The nearest residential uses are located adjacent to the proposed project to the south. Therefore, per the LST methodology a 25-meter (82-foot) receptor distance was used was used to establish the threshold for all pollutants. The Alumni Center Building site is approximately 0.25 acres. In addition, approximately 0.75 acres of the parking lot located across Pereira Avenue will be used as a lay down area during construction. Per SCAQMD guidance, if the project site is less than one-acre, the threshold for a one-acre site should be used. This information was used to determine the localized significance thresholds applicable to the project.

The LST thresholds specific for the proposed project are presented in Table 6. A project with on-site daily emission rates below these thresholds is considered to have a less than significant effect on local air quality.

Table 6
Localized Significance Thresholds

	Localized Significance Threshold (lbs/day)			
	CO	NO_x	PM_{10}	$PM_{2.5}$
Construction	647.0	92.0	4.0	3.0
Operation	647.0	92.0	1.0	1.0

In addition, the project would result in a local air quality impact if the project results in increased traffic volumes and/or decreases in Level of Service (LOS) that would result in an exceedance of the CO ambient air quality standards of 20 ppm for 1-hour Carbon Monoxide (CO) concentration levels, and 9 ppm for 8-hour CO concentration levels. If the CO concentration levels at potentially impacted intersections with the project are lower the standards, then there is no significant impact. If future CO concentrations with the project are above these levels, then the project will have a significant local air quality impact.

2.2 Short-Term Impacts

Temporary impacts will result from project construction activities. Air pollutants will be emitted by construction equipment and fugitive dust will be generated during demolition of the existing improvements as well as during grading of the site.

2.2.1 Construction Emission Calculation Methodology

Emissions during the primary phases of construction were calculated using URBEMIS2007 program (version 9.2.4). A description of the general construction activities and the equipment expected to be utilized for these activities was provided by the project applicant and are described in detail in the following section.

Fugitive dust emissions were calculated using methodologies suggested by the SCAQMD in their "Sample Construction Scenarios for Projects Less than Five Acres in Size" (February 2005). The fugitive dust calculation methodologies used in the URBEMIS program are based on large grading projects rather than conditions that occur with smaller projects such as the proposed project. The SCAQMD methodologies used to calculate fugitive dust emissions are based on emission factors from the Environmental Protection Agency in their AP-42 compilation of air pollutant emission factors (http://www.epa.gov/ttnchie1/ap42/). The fugitive dust emissions assume compliance with SCAQMD Rule 403 which requires watering to reduce fugitive dust emissions. The output files from URBEMIS and worksheets showing the fugitive dust calculations are presented in the appendix.

The URBEMIS model calculates total emissions, on-site and off-site, resulting from each construction activity which are compared to the SCAQMD Regional Thresholds presented in Table 5. On-site project emissions, which are compared to the SCAQMD Local Significance Thresholds presented in Table 6, were calculated by scaling the emissions from on-road sources so that only the emissions from on-site portion of the trip are included. Each worker, material removal or delivery trip was assumed to have a 0.2-mile component within the project site.

2.2.2 Construction Activities

Construction of the proposed Alumni Center Building is anticipated to begin the first week of September 2011 and take approximately 16 months to complete. Table 7 presents the estimated construction schedule used to calculate pollutant emissions. Delays in the start for each phase of construction would not significantly affect emission estimates. In fact, the URBEMIS program includes a reduction in on-road and off-road vehicle exhaust emissions each year to account for new construction equipment and on-road vehicles manufactured under stricter emission standards becoming a larger part of the construction fleet (a fleet average emission factor is used to estimate emissions). So for emissions modeling purposes, a delay moving the activity into the following year would actually result in a slight reduction in the exhaust emissions estimates. Lengthening the duration of each activity would result in the same or lower daily emissions as daily activity levels for emission sources would either not change or decrease as the work is spread out over a longer period of time. A shortening of any of the construction activities assumed could result in higher emissions and would require a re-analysis of the emission impacts.

Table 7
Estimated Construction Schedule Used For Emissions Modeling

Activity	Start	Duration (Weeks)	End
Grading	August 29, 2011	10	November 4, 2011
Construction	November 7, 2011	60	December 28, 2012
Arch Coating	December 17, 2012	2	December 28, 2012
Total Duration		**70 (16.1 Months)**	

The following paragraphs describe the activity assumptions used to calculate emissions for each of the construction activities discussed above. The URBEMIS model output files are presented in the appendix.

Grading is the grading of project site in preparation of building construction. This work will occur over the approximately 1.0-acres of the project site and is estimated to take five weeks. The project will require the export of approximately 20,000 cubic yards of material and approximately 2,000 cubic yards of material is expected to be moved on site. The emissions calculation includes 23 daily haul truck trips with a round trip distance of 20 miles for the exported materials. Equipment assumed to be used during grading includes (1) tractor/loader/backhoe and (1) water truck. The URBEMIS2007 default assumptions were used to estimate emissions from worker trips.

Construction is the construction of the proposed building. Building construction emissions were calculated for the portion of construction with the greatest amount of activity that will result in the highest emissions. Equipment assumed to be used during construction includes (3) welders, (2) forklifts, (1) crane, (1) tractor/loader/backhoe, and (2) aerial lifts. The URBEMIS2007 default assumptions were used to estimate emissions from material deliveries and worker trips.

Architectural Coating is the painting of the new building. VOCs are emitted from these coatings as well as the solvents used in cleanup of the coatings. The amount of VOCs that are emitted is dependent on the specific coating being used and its VOC content. Architectural coating emissions were estimated utilizing URBEMIS2007 default assumptions.

2.2.3 Regional Construction Emissions

Using the estimates presented above, the air pollutant emissions were calculated and presented in Table 8. The daily emissions are calculated and these represent the highest level of emissions during each construction activity.

Table 8 shows that no individual construction activity will generate emissions that exceed the SCAQMD Regional Emissions Significance Thresholds. In 2012 building construction will occur concurrently with painting (see Table 7). Table 9 presents the total emissions during these concurrent construction activities. These are simply the sum of the emissions presented in Table 8 for the concurrent activities.

Table 8
Total Construction Emissions by Activity

	Daily Emissions (lbs/day)					
Activity	**CO**	**NO_x**	**VOC**	**PM_{10}**	**$PM_{2.5}$**	**SO_x**
Grading	7.8	18.7	1.8	4.1	1.5	0.02
Construction (2011)	11.3	14.5	2.8	1.1	1.0	0.00
Construction (2012)	11.0	13.6	2.6	1.0	0.9	0.00
Painting	0.6	0.0	62.1	0.0	0.0	0.00
Significance Threshold	**550**	**100**	**75**	**150**	**55**	**150**
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Table 9
Total Concurrent Construction Emissions

	Daily Emissions (lbs/day)					
Activity	**CO**	**NO_x**	**VOC**	**PM_{10}**	**$PM_{2.5}$**	**SO_x**
Building Construction Combined With:						
Painting	11.6	13.7	64.8	1.0	0.9	0.0
Significance Threshold	**550**	**100**	**75**	**150**	**55**	**150**
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Table 9 shows that no concurrent construction activity will generate emissions that exceed the SCAQMD Regional Emissions Significance Thresholds. Therefore, the construction of the project will not result in a significant regional air quality impact.

2.2.4 On-site Construction Emissions

On-site emissions for each of the construction activities were calculated based on the URBEMIS output as discussed in Section 2.2.1 and are presented in Table 10. The applicable LST thresholds are also presented.

Table 10
On-Site Emissions By Construction Activity

Activity	Daily Emissions (lbs/day)			
	CO	NO_x	PM_{10}	$PM_{2.5}$
Grading	3.4	7.8	3.6	1.1
Construction (2011)	9.4	14.2	1.1	1.0
Construction (2012)	9.2	13.3	1.0	0.9
Painting	0.0	0.0	0.0	0.0
Significance Threshold	**647.0**	**92.0**	**4.0**	**3.0**
Exceed Threshold?	**No**	**No**	**No**	**No**

Table 10 shows that no individual construction activity will generate emissions that exceed the SCAQMD Localized Significance Thresholds. In 2012, building construction will occur concurrently with painting (see Table 7). Table 11 presents the total emissions during these concurrent construction activities. These are simply the sum of the emissions presented in Table 10 for the concurrent activities.

Table 11
On-Site Emissions By Concurrent Construction Activities

Activity	Daily Emissions (lbs/day)			
	CO	NO_x	PM_{10}	$PM_{2.5}$
Building Construction Combined With:				
Painting	9.2	13.3	1.0	0.9
Significance Threshold	**647.0**	**92.0**	**4.0**	**3.0**
Exceed Threshold?	**No**	**No**	**No**	**No**

Table 11 shows that no concurrent construction activity will generate emissions that exceed the SCAQMD Localized Significance Thresholds. Therefore, the construction of the project will not result in a significant local air quality impact.

2.2.5 Diesel Particulate Matter Emissions During Construction

In 1998, the California Air Resources Board (ARB) identified particulate matter from diesel-fueled engines (Diesel Particulate Matter or DPM) as a Toxic Air Contaminant (TAC). It is assumed that the majority of the heavy construction equipment utilized during construction would be diesel fueled and emit DPM. Impacts from toxic substances are related to cumulative exposure and are assessed over a 70-year period. Cancer risk is expressed as the maximum number of new cases of cancer projected to occur in a population of one million people due to exposure to the cancer-causing substance over a 70-year lifetime (California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Guide to Health Risk Assessment.) Demolition and grading for the project, when the peak diesel exhaust emissions would occur, is expected to take approximately six months, cumulatively, with all construction expected to take approximately 14 months. Because of the relatively short duration of construction compared to a 70-year lifespan, diesel emissions resulting from the construction of the project are not expected to result in a significant impact.

2.3 Long Term Impacts

The primary source of long-term operational air pollutant emissions associated with the project will be motor vehicles. Long-term operational emissions from the project also include combustion of natural gas for water and space heating, landscape maintenance equipment and maintenance painting. Project emissions were calculated assuming the largest building considered (29,000 gsf/18,000 asf) for the expected opening year of the project, 2012. The EMFAC2007 program, which is used as the basis for the vehicular emissions in the URBEMIS2007 program, shows that average vehicular emissions are projected to decline in future years as older higher polluting vehicles are replaced with newer less polluting vehicles. Therefore, the opening year emissions represents the greatest emissions from the operation of the project.

Total emissions from the project area for the opening year of the project were calculated using the methodology presented in Section 2.3.1 and are presented in Section 2.3.2. These emissions are compared to the SCAQMD Regional emission factors presented in Section 2.1.1. Total on-site emissions from the project during the interim period were calculated using the methodology presented in Section 2.3.1 and are presented in Section 2.3.3. These emissions are compared to the Local Significance Thresholds (LST) presented in Section 2.1.2. Traffic generated by the project has the potential to affect air pollutant concentrations at intersections in the vicinity of the project. These impacts are examined in Section 2.3.4.

2.3.1 Project Emissions Calculation Methodology

Air pollutant emissions due to the project were calculated using the URBEMIS2007 program (version 9.4.2). To determine emissions with the project, the program was set to calculate emissions for 29,000 gross square foot office building on a 1.0-acre site. Default URBEMIS2007 variables were used for the calculations except the trip generation rate. The traffic engineer for the project, Austin-Foust Associates, calculated the daily trip generation rate to be 188 trips per day based on 18,000 assignable square feet generating 10.44 trips per day per thousand square feet.

Emissions were calculated for the opening year of the project, 2012. Vehicular emissions are projected to decrease in future years (as projected by EMFAC2007). Therefore, emissions during the first year are the highest emissions from the project during its lifespan. URBEMIS2007 calculates daily emissions for the summertime and wintertime periods. The

results presented below are the highest daily emissions for either season. Output files from the URBEMIS2007 program are presented in the appendix and provide the emissions for each season independently. URBEMIS2007 calculates total regional emissions associated with the operation of the project. On-site emissions were calculated by scaling the vehicular emissions by the ratio of the on-site trip length, 0.25 miles, to the total average trip length of 10.2 miles determined by URBEMIS2007.

2.3.2 Regional Project Emissions

Table 12 presents the results of the URBEMIS2007 model showing the daily air pollutant emissions projected for the opening year of the project. The URBEMIS2007 output file showing the specific data utilized in calculating the emissions due to the project are provided in the appendix.

Table 12
Total Emissions With Project

	Daily Emissions (lbs/day)					
Activity	**CO**	**VOC**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**SO_x**
Vehicular Emissions	16.0	1.4	1.9	3.3	0.6	0.02
Natural Gas Combustion	0.2	0.0	0.2	0.0	0.0	0.00
Landscaping	1.6	0.1	0.0	0.0	0.0	0.00
Architectural Coatings	0.0	0.2	0.0	0.0	0.0	0.00
Total Emissions	**17.7**	**1.7**	**2.1**	**3.3**	**0.7**	**0.02**
Significance Threshold	**550**	**55**	**55**	**150**	**55**	**150**
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Table 12 shows that the total emissions from the project will be less than the SCAQMD regional significance thresholds. Therefore, the project will not result in a significant regional air quality impact. No mitigation is required.

Table 13 compares total emissions with the project to the projected basin wide emissions from the 2003 AQMP. This comparison shows that the project represents a very small fraction of the total regional emissions. The project represents, at most, less than one thousandth of a percent of the total regional emissions.

Table 13
Comparison of interim Project Emissions with SCAB Emissions

	Pollutant Emissions (tons/day)					
	CO	**VOC**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**SO_x**
Project Emissions	0.00884	0.000825	0.00106	0.001655	0.000325	0.00001
2023 South Coast Air Basin*	2,147	95	539	508	318	102
Project as Percentage of Basin	0.0004%	0.0009%	0.0002%	0.0003%	0.0001%	0.0000%

* Source: 2007 AQMP Table 3-5A except PM_{10} from 2003 AQMP Tables 3-5A and 3-5B

2.3.3 On-Site Project Emissions

Based on the assumptions described above, the on-site emissions during the opening year of the project were calculated and are presented in Table 14. Table 14 shows that the on-site emissions will not exceed the LSTs. Therefore, the project will not result in a significant localized air quality impact.

Table 14
On-Site Project Emissions

	Daily Emissions (lbs/day)			
Activity	**CO**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
Vehicular Emissions	0.4	0.04	0.08	0.02
Natural Gas Combustion	0.2	0.19	0.00	0.00
Landscaping	1.6	0.02	0.01	0.01
Architectural Coatings	0.0	0.00	0.00	0.00
Total Emissions	**2.1**	**0.25**	**0.09**	**0.03**
Significance Threshold	**647.0**	**92.0**	**1.0**	**1.0**
Exceed Threshold?	**No**	**No**	**No**	**No**

2.3.4 Local Air Quality Impacts Near Intersections Affected by Traffic Generated by The Project

Increased traffic volumes due to the project result in increased pollutant emissions in the vicinity of the roads utilized by this traffic, which can cause pollutant levels to exceed the ambient air quality standards. Carbon monoxide (CO) and particulates (PM_{10} and $PM_{2.5}$) are the pollutants of major concern along roadways.

The most notable source of CO is motor vehicles. For this reason, carbon monoxide concentrations are usually indicative of the local air quality generated by a roadway network, and are used as an indicator of its impacts on local air quality. CO concentrations are highest near intersections where queuing increases emissions. Local air quality impacts can be assessed by comparing future carbon monoxide levels with State and Federal carbon monoxide standards moreover by comparing future CO concentrations with and without the project. The Federal and State standards for carbon monoxide were presented earlier in Table 1.

CO modeling was performed for the 2003 AQMP to demonstrate attainment of the federal CO standards in the South Coast Air Basin (SCAB). Modeling was performed for four intersections considered the worst-case intersections in the SCAB. These intersections included; Wilshire at Veteran, Sunset at Highland, La Cienega at Century, and Long Beach at Imperial. Table 4-10 of Appendix V of the AQMP shows that modeled 1-hour average concentrations at these four intersections for 2002 conditions are actually below the 8-hour standard of 9 ppm. The highest modeled 1-hour average concentration of 4.6 ppm occurred at the Wilshire and Veteran intersection. Generally, only intersections operating at LOS of D or worse are considered to have the potential to cause CO concentrations to exceed the state ambient air quality standards of 20 ppm for a 1-hour averaging time and 9 ppm for an 8-hour averaging time.

Roads with substantial diesel truck volumes have the potential to result in particulate hot spots. The FHWA has published guidance on performing a qualitative analysis of particulate hot spots

because at this time a reliable and accurate methodology for quantitatively assessing particulate hotspots has not been established. The FHWA guidance considers a road with an average daily diesel truck volume of 10,000 or less does not have the potential to result in a hot spot.

The project is projected to generate 11 additional trips during the PM peak hour, 17 additional trips during the AM peak hour, and a total of 188 additional trips each day (Austin-Foust Associates, "UCI Alumni Center Traffic Evaluation Technical Memorandum" November30, 2010). Further, the vast majority of these additional trips would be expected to be passenger vehicles and not heavy trucks. This additional traffic is minor would not be expected to considerably increase CO or particulate matter concentrations near any intersection.

The project is not anticipated to cause or significantly contribute to any CO or particulate matter concentrations exceeding the AAQS along roadways serving the project. Therefore, the Project will not result in a significant local air quality impact along roadways serving the project.

2.4 Compliance with Air Quality Planning

The following sections deal with the major air planning requirements for this project. Specifically, consistency of the project with the AQMP is addressed. As discussed below, consistency with the AQMP is a requirement of the California Environmental Quality Act (CEQA).

2.4.1 Consistency with AQMP

An EIR must discuss any inconsistencies between the proposed project and applicable GPs and regional plans (California Environmental Quality Act (CEQA) guidelines (Section 15125)). Regional plans that apply to the proposed project include the South Coast Air Quality Management Plan (AQMP). In this regard, this section will discuss any inconsistencies between the proposed project with the AQMP.

The purpose of the consistency discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the project would interfere with the region's ability to comply with Federal and State air quality standards. If the decision-maker determines that the project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD's CEQA Handbook states that "New or amended GP Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the plan if it furthers one or more policies and does not obstruct other policies. The Handbook identifies two key indicators of consistency:

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP (except as provided for CO in Section 9.4 for relocating CO hot spots).

(2) Whether the project will exceed the assumptions in the AQMP based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

Criterion 1 - Increase in the Frequency or Severity of Violations?

Based on the air quality modeling analysis contained in this report, there will not be significant short-term construction and long-term operational impacts due to the project based on the SCAQMD thresholds of significance. Emissions generated during construction and operation will not exceed SCAQMD's LST criteria, and therefore, it is unlikely that development of the project will increase the frequency or severity of existing air quality violations in the immediate vicinity of the project. Further, the project is not projected to result in any exceedances due to traffic volume increases at nearby intersections. The proposed project is not projected to contribute to the exceedance of any air pollutant concentration standards, thus the project is found to be consistent with the AQMP for the first criterion.

Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the project with the assumptions in the AQMP. Thus, the emphasis of this criterion is to insure that the analyses conducted for the project are based on the same forecasts as the AQMP. The Regional Comprehensive Plan and Guide (RCP&G) consists of three sections: Core Chapters, Ancillary Chapters, and Bridge Chapters. The Growth Management, Regional Mobility, Air Quality, Water Quality, and Hazardous Waste Management chapters constitute the Core Chapters of the document. These chapters currently respond directly to federal and state requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA.

Since the SCAG forecasts are not detailed, the test for consistency of this project is not specific. The SCAG forecasts are based on the General Plans of municipalities in the basin. The project is consistent with the University's Long Range Development Plan (LDRP) which is effectively the University's General Plan. Further, the analysis presented above shows that the total project emissions are less than the SCAQMD significance thresholds. The emissions increase due to the project is minor and will not interfere with the AQMP or the attainment of the ambient air quality standards. Therefore, emissions from the project site at project completion will not be greater than those anticipated in the AQMP.

3.0 Mitigation Measures

3.1 Short-Term Impacts

The analysis presented in Section 2.2 concluded that the construction of the project would not result in any significant short-term air quality impacts. Note that the calculations assumed watering of the site twice a day during grading and demolition activities as required by SCAQMD Rule 403. All applicable provisions of SCAQMD Rule 403 shall be implemented. The project is being developed under the UC Irvine Long Range Development Plan. Mitigation measure Air-2B from the FEIR prepared for the plan will also need to be applied to the project. This mitigation measure is presented below. No project specific mitigation measures are required.

3.1.1 Long Range Development Plan Mitigation Measure Air-2B

Prior to initiating on-site construction UCI shall ensure that the project construction contract includes a construction emissions mitigation plan, including measures compliant with SCAQMD Rule 403 (Fugitive Dust) to be implemented and supervised by the on-site construction supervisor, which shall include, but not be limited to, the following Best Management Practices (BMPs):

i. During grading and site preparation activities, exposed soil areas shall be stabilized via frequent watering, non-toxic chemical stabilization, or equivalent measures at a rate to be determined by the on-site construction supervisor.

ii. During windy days when fugitive dust can be observed leaving the construction site, additional applications of water shall be required at a rate to be determined by the on-site construction supervisor.

iii. Disturbed areas designated for landscaping shall be prepared as soon as possible after completion of construction activities.

iv. Areas of the construction site that will remain inactive for three months or longer following clearing, grubbing and/or grading shall receive appropriate BMP treatments (e.g., revegetation, mulching, covering with tarps, etc.) to prevent fugitive dust generation.

v. All exposed soil or material stockpiles that will not be used within 3 days shall be enclosed, covered, or watered twice daily, or shall be stabilized with approved non-toxic chemical soil binders at a rate to be determined by the on-site construction supervisor.

vi. Unpaved access roads shall be stabilized via frequent watering, non-toxic chemical stabilization, temporary paving, or equivalent measures at a rate to be determined by the on-site construction supervisor.

vii. Trucks transporting materials to and from the site shall allow for at least two feet of freeboard (i.e., minimum vertical distance between the top of the load and the top of the trailer). Alternatively, trucks transporting materials shall be covered.

viii. Speed limit signs at 15 mph or less shall be installed on all unpaved roads within construction sites.

ix. Where visible soil material is tracked onto adjacent public paved roads, the paved roads shall be swept and debris shall be returned to the construction site or transported off site for disposal.

x. Wheel washers, dirt knock-off grates/mats, or equivalent measures shall be installed within the construction site where vehicles exit unpaved roads onto paved roads.

xi. Diesel powered construction equipment shall be maintained in accordance with manufacturer's requirements, and shall be retrofitted with diesel particulate filters where available and practicable.

xii. Heavy duty diesel trucks and gasoline powered equipment shall be turned off if idling is anticipated to last for more than 5 minutes.

xiii. Where feasible, the construction contractor shall use alternatively fueled construction equipment, such as electric or natural gas-powered equipment or biofuel.

xiv. Heavy construction equipment shall use low NO_x diesel fuel to the extent that it is readily available at the time of construction.

xv. To the extent feasible, construction activities shall rely on the campus's existing electricity infrastructure rather than electrical generators powered by internal combustion engines.

xvi. The construction contractor shall develop a construction traffic management plan that includes the following:

- Scheduling heavy-duty truck deliveries to avoid peak traffic periods
- Consolidating truck deliveries

xvii. Where possible, the construction contractor shall provide a lunch shuttle or on-site lunch service for construction workers.

xviii. The construction contractor shall, to the extent possible, use pre-coated architectural materials that do not require painting. Water-based or low VOC coatings shall be used that are compliant with SCAQMD Rule 1113. Spray equipment with high transfer efficiency, such as the high volume-low pressure spray method, or manual coatings application shall be used to reduce VOC emissions to the extent possible.

xix. Project constructions plans and specifications will include a requirement to define and implement a work program that would limit the emissions of reactive organic gases (ROG's) during the application of architectural coatings to the extent necessary to keep total daily ROG's for each project to below 75 pounds per day, or the current SCAQMD threshold, throughout that period of construction activity to the extent feasible. The specific program may include any combination of restrictions on the types of paints and coatings, application methods, and the amount of surface area coated as determined by the contractor.

xx. The construction contractor shall maintain signage along the construction perimeter with the name and telephone number of the individual in charge of implementing the construction emissions mitigation plan, and with the telephone number of the SCAQMD's complaint line. The contractor's representative shall maintain a log of public complaints and corrective actions taken to resolve complaints.

3.2 Long-Term Impacts

The analysis presented in Section 2.3 concluded that the operation of the project would not result in any significant long-term air quality impacts. No mitigation measures are required.

4.0 Unavoidable Significant Impacts

With the mitigation measures described in Section 3.0, all significant impacts will be reduced to a level of insignificance and the project will not result in any unavoidable significant impacts.

Appendix

URBEMIS Output Files

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\MBJ\Application Data\Urbemis\Version9a\Projects\UCI Alumni Center\UCIAlumCent.urb924

Project Name: UCI Alumni Center

Project Location: Orange County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	2.81	18.68	11.34	0.02	215.42	1.07	216.28	45.00	0.99	45.79	2,583.98
2011 TOTALS (lbs/day mitigated)	2.81	18.68	11.34	0.02	65.86	1.07	66.71	13.76	0.99	14.55	2,583.98
2012 TOTALS (lbs/day unmitigated)	64.75	13.67	11.60	0.00	0.02	0.99	1.00	0.01	0.91	0.91	1,802.37
2012 TOTALS (lbs/day mitigated)	64.75	13.67	11.60	0.00	0.02	0.99	1.00	0.01	0.91	0.91	1,802.37

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.30	0.21	1.71	0.00	0.01	0.01	234.81

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1.35	1.59	15.97	0.02	3.30	0.64	1,943.70

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1.65	1.80	17.68	0.02	3.31	0.65	2,178.51

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 8/29/2011-11/4/2011 Active Days: 50	1.79	**18.68**	7.80	**0.02**	**215.42**	0.86	**216.28**	**45.00**	0.79	**45.79**	**2,583.98**
Fine Grading 08/29/2011-11/04/2011	1.79	18.68	7.80	0.02	215.42	0.86	216.28	45.00	0.79	45.79	2,583.98
Fine Grading Dust	0.00	0.00	0.00	0.00	215.37	0.00	215.37	44.98	0.00	44.98	0.00
Fine Grading Off Road Diesel	0.96	7.73	3.32	0.00	0.00	0.43	0.43	0.00	0.40	0.40	826.42
Fine Grading On Road Diesel	0.82	10.93	4.02	0.02	0.06	0.42	0.48	0.02	0.39	0.41	1,695.36
Fine Grading Worker Trips	0.01	0.03	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.21
Time Slice 11/7/2011-12/30/2011 Active Days: 40	2.81	14.53	11.34	0.00	0.01	**1.07**	1.09	0.00	**0.99**	0.99	1,712.23
Building 11/07/2011-12/28/2012	2.81	14.53	11.34	0.00	0.01	1.07	1.09	0.00	0.99	0.99	1,712.23
Building Off Road Diesel	2.74	14.16	9.41	0.00	0.00	1.06	1.06	0.00	0.97	0.97	1,421.89
Building Vendor Trips	0.02	0.27	0.23	0.00	0.00	0.01	0.01	0.00	0.01	0.01	59.42
Building Worker Trips	0.05	0.10	1.70	0.00	0.01	0.01	0.02	0.00	0.01	0.01	230.91
Time Slice 1/2/2012-12/14/2012 Active Days: 250	2.61	13.64	10.98	0.00	0.01	0.98	1.00	0.00	0.90	0.91	1,712.19
Building 11/07/2011-12/28/2012	2.61	13.64	10.98	0.00	0.01	0.98	1.00	0.00	0.90	0.91	1,712.19
Building Off Road Diesel	2.54	13.30	9.18	0.00	0.00	0.97	0.97	0.00	0.89	0.89	1,421.89
Building Vendor Trips	0.02	0.24	0.21	0.00	0.00	0.01	0.01	0.00	0.01	0.01	59.42
Building Worker Trips	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.01	0.01	230.87

Time Slice 12/17/2012-12/28/2012 Active Days: 10	**64.75**	13.67	**11.60**	0.00	0.02	0.99	1.00	0.01	0.91	0.91	1,802.37
Building 11/07/2011-12/28/2012	2.61	13.64	10.98	0.00	0.01	0.98	1.00	0.00	0.90	0.91	1,712.19
Building Off Road Diesel	2.54	13.30	9.18	0.00	0.00	0.97	0.97	0.00	0.89	0.89	1,421.89
Building Vendor Trips	0.02	0.24	0.21	0.00	0.00	0.01	0.01	0.00	0.01	0.01	59.42
Building Worker Trips	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.01	0.01	230.87
Coating 12/17/2012-12/28/2012	62.14	0.03	0.62	0.00	0.00	0.00	0.01	0.00	0.00	0.00	90.19
Architectural Coating	62.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.62	0.00	0.00	0.00	0.01	0.00	0.00	0.00	90.19

Phase Assumptions

Phase: Fine Grading 8/29/2011 - 11/4/2011 - Site Grading

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 1

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 45.45 cubic yards/day; Offsite Cut/Fill: 454.55 cubic yards/day

On Road Truck Travel (VMT): 400

Off-Road Equipment:

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 11/7/2011 - 12/28/2012 - Construction

Off-Road Equipment:

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 12/17/2012 - 12/28/2012 - Painting

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 8/29/2011-11/4/2011 Active Days: 50	1.79	**18.68**	7.80	**0.02**	65.86	0.86	66.71	13.76	0.79	14.55	**2,583.98**
Fine Grading 08/29/2011-11/04/2011	1.79	18.68	7.80	0.02	65.86	0.86	66.71	13.76	0.79	14.55	2,583.98
Fine Grading Dust	0.00	0.00	0.00	0.00	65.80	0.00	65.80	13.74	0.00	13.74	0.00
Fine Grading Off Road Diesel	0.96	7.73	3.32	0.00	0.00	0.43	0.43	0.00	0.40	0.40	826.42
Fine Grading On Road Diesel	0.82	10.93	4.02	0.02	0.06	0.42	0.48	0.02	0.39	0.41	1,695.36
Fine Grading Worker Trips	0.01	0.03	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.21
Time Slice 11/7/2011-12/30/2011 Active Days: 40	2.81	14.53	11.34	0.00	0.01	**1.07**	1.09	0.00	**0.99**	0.99	1,712.23
Building 11/07/2011-12/28/2012	2.81	14.53	11.34	0.00	0.01	1.07	1.09	0.00	0.99	0.99	1,712.23
Building Off Road Diesel	2.74	14.16	9.41	0.00	0.00	1.06	1.06	0.00	0.97	0.97	1,421.89
Building Vendor Trips	0.02	0.27	0.23	0.00	0.00	0.01	0.01	0.00	0.01	0.01	59.42
Building Worker Trips	0.05	0.10	1.70	0.00	0.01	0.01	0.02	0.00	0.01	0.01	230.91

Time Slice 1/2/2012-12/14/2012 Active Days: 250	2.61	13.64	10.98	0.00	0.01	0.98	1.00	0.00	0.90	0.91	1,712.19
Building 11/07/2011-12/28/2012	2.61	13.64	10.98	0.00	0.01	0.98	1.00	0.00	0.90	0.91	1,712.19
Building Off Road Diesel	2.54	13.30	9.18	0.00	0.00	0.97	0.97	0.00	0.89	0.89	1,421.89
Building Vendor Trips	0.02	0.24	0.21	0.00	0.00	0.01	0.01	0.00	0.01	0.01	59.42
Building Worker Trips	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.01	0.01	230.87
Time Slice 12/17/2012-12/28/2012 Active Days: 10	**64.75**	13.67	**11.60**	0.00	0.02	0.99	1.00	0.01	0.91	0.91	1,802.37
Building 11/07/2011-12/28/2012	2.61	13.64	10.98	0.00	0.01	0.98	1.00	0.00	0.90	0.91	1,712.19
Building Off Road Diesel	2.54	13.30	9.18	0.00	0.00	0.97	0.97	0.00	0.89	0.89	1,421.89
Building Vendor Trips	0.02	0.24	0.21	0.00	0.00	0.01	0.01	0.00	0.01	0.01	59.42
Building Worker Trips	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.01	0.01	230.87
Coating 12/17/2012-12/28/2012	62.14	0.03	0.62	0.00	0.00	0.00	0.01	0.00	0.00	0.00	90.19
Architectural Coating	62.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.62	0.00	0.00	0.00	0.01	0.00	0.00	0.00	90.19

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 8/29/2011 - 11/4/2011 - Site Grading

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.01	0.19	0.16	0.00	0.00	0.00	232.00
Hearth - No Summer Emissions							
Landscape	0.12	0.02	1.55	0.00	0.01	0.01	2.81
Consumer Products	0.00						
Architectural Coatings	0.17						
TOTALS (lbs/day, unmitigated)	0.30	0.21	1.71	0.00	0.01	0.01	234.81

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
General office building	1.35	1.59	15.97	0.02	3.30	0.64	1,943.70
TOTALS (lbs/day, unmitigated)	1.35	1.59	15.97	0.02	3.30	0.64	1,943.70

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2012 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General office building		6.48	1000 sq ft	29.00	187.92	1,912.56
					187.92	1,912.56

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.2	0.6	99.2	0.2
Light Truck < 3750 lbs	7.0	1.4	95.7	2.9
Light Truck 3751-5750 lbs	24.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.2	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	2.9	58.6	41.4	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
General office building				35.0	17.5	47.5

Operational Changes to Defaults

6/27/2011 4:44:34 PM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\MBJ\Application Data\Urbemis\Version9a\Projects\UCI Alumni Center\UCIAlumCent.urb924

Project Name: UCI Alumni Center

Project Location: Orange County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	2.81	18.68	11.34	0.02	215.42	1.07	216.28	45.00	0.99	45.79	2,583.98
2011 TOTALS (lbs/day mitigated)	2.81	18.68	11.34	0.02	65.86	1.07	66.71	13.76	0.99	14.55	2,583.98
2012 TOTALS (lbs/day unmitigated)	64.75	13.67	11.60	0.00	0.02	0.99	1.00	0.01	0.91	0.91	1,802.37
2012 TOTALS (lbs/day mitigated)	64.75	13.67	11.60	0.00	0.02	0.99	1.00	0.01	0.91	0.91	1,802.37

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.18	0.19	0.16	0.00	0.00	0.00	232.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1.42	1.93	15.15	0.02	3.30	0.64	1,755.10

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1.60	2.12	15.31	0.02	3.30	0.64	1,987.10

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 8/29/2011-11/4/2011 Active Days: 50	1.79	**18.68**	7.80	**0.02**	**215.42**	0.86	**216.28**	**45.00**	0.79	**45.79**	**2,583.98**
Fine Grading 08/29/2011-11/04/2011	1.79	18.68	7.80	0.02	215.42	0.86	216.28	45.00	0.79	45.79	2,583.98
Fine Grading Dust	0.00	0.00	0.00	0.00	215.37	0.00	215.37	44.98	0.00	44.98	0.00
Fine Grading Off Road Diesel	0.96	7.73	3.32	0.00	0.00	0.43	0.43	0.00	0.40	0.40	826.42
Fine Grading On Road Diesel	0.82	10.93	4.02	0.02	0.06	0.42	0.48	0.02	0.39	0.41	1,695.36
Fine Grading Worker Trips	0.01	0.03	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.21
Time Slice 11/7/2011-12/30/2011 Active Days: 40	2.81	14.53	11.34	0.00	0.01	**1.07**	1.09	0.00	**0.99**	0.99	1,712.23
Building 11/07/2011-12/28/2012	2.81	14.53	11.34	0.00	0.01	1.07	1.09	0.00	0.99	0.99	1,712.23
Building Off Road Diesel	2.74	14.16	9.41	0.00	0.00	1.06	1.06	0.00	0.97	0.97	1,421.89
Building Vendor Trips	0.02	0.27	0.23	0.00	0.00	0.01	0.01	0.00	0.01	0.01	59.42
Building Worker Trips	0.05	0.10	1.70	0.00	0.01	0.01	0.02	0.00	0.01	0.01	230.91
Time Slice 1/2/2012-12/14/2012 Active Days: 250	2.61	13.64	10.98	0.00	0.01	0.98	1.00	0.00	0.90	0.91	1,712.19
Building 11/07/2011-12/28/2012	2.61	13.64	10.98	0.00	0.01	0.98	1.00	0.00	0.90	0.91	1,712.19
Building Off Road Diesel	2.54	13.30	9.18	0.00	0.00	0.97	0.97	0.00	0.89	0.89	1,421.89
Building Vendor Trips	0.02	0.24	0.21	0.00	0.00	0.01	0.01	0.00	0.01	0.01	59.42
Building Worker Trips	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.01	0.01	230.87

Time Slice 12/17/2012-12/28/2012 Active Days: 10	**64.75**	13.67	**11.60**	0.00	0.02	0.99	1.00	0.01	0.91	0.91	1,802.37
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Building Off Road Diesel	2.54	13.30	9.18	0.00	0.00	0.97	0.97	0.00	0.89	0.89	1,421.89
Building Vendor Trips	0.02	0.24	0.21	0.00	0.00	0.01	0.01	0.00	0.01	0.01	59.42
Building Worker Trips	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.01	0.01	230.87
Coating 12/17/2012-12/28/2012	62.14	0.03	0.62	0.00	0.00	0.00	0.01	0.00	0.00	0.00	90.19
Architectural Coating	62.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.62	0.00	0.00	0.00	0.01	0.00	0.00	0.00	90.19

Phase Assumptions

Phase: Fine Grading 8/29/2011 - 11/4/2011 - Site Grading

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 1

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 45.45 cubic yards/day; Offsite Cut/Fill: 454.55 cubic yards/day

On Road Truck Travel (VMT): 400

Off-Road Equipment:

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

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Phase: Building Construction 11/7/2011 - 12/28/2012 - Construction

Off-Road Equipment:

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1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 12/17/2012 - 12/28/2012 - Painting

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

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Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 8/29/2011-11/4/2011 Active Days: 50	1.79	**18.68**	7.80	**0.02**	65.86	0.86	66.71	13.76	0.79	14.55	**2,583.98**
Fine Grading 08/29/2011-11/04/2011	1.79	18.68	7.80	0.02	65.86	0.86	66.71	13.76	0.79	14.55	2,583.98
Fine Grading Dust	0.00	0.00	0.00	0.00	65.80	0.00	65.80	13.74	0.00	13.74	0.00
Fine Grading Off Road Diesel	0.96	7.73	3.32	0.00	0.00	0.43	0.43	0.00	0.40	0.40	826.42
Fine Grading On Road Diesel	0.82	10.93	4.02	0.02	0.06	0.42	0.48	0.02	0.39	0.41	1,695.36
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Building 11/07/2011-12/28/2012	2.81	14.53	11.34	0.00	0.01	1.07	1.09	0.00	0.99	0.99	1,712.23
Building Off Road Diesel	2.74	14.16	9.41	0.00	0.00	1.06	1.06	0.00	0.97	0.97	1,421.89
Building Vendor Trips	0.02	0.27	0.23	0.00	0.00	0.01	0.01	0.00	0.01	0.01	59.42
Building Worker Trips	0.05	0.10	1.70	0.00	0.01	0.01	0.02	0.00	0.01	0.01	230.91

Time Slice 1/2/2012-12/14/2012 Active Days: 250	2.61	13.64	10.98	0.00	0.01	0.98	1.00	0.00	0.90	0.91	1,712.19
Building 11/07/2011-12/28/2012	2.61	13.64	10.98	0.00	0.01	0.98	1.00	0.00	0.90	0.91	1,712.19
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Building Vendor Trips	0.02	0.24	0.21	0.00	0.00	0.01	0.01	0.00	0.01	0.01	59.42
Building Worker Trips	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.01	0.01	230.87
Time Slice 12/17/2012-12/28/2012 Active Days: 10	**64.75**	13.67	**11.60**	0.00	0.02	0.99	1.00	0.01	0.91	0.91	1,802.37
Building 11/07/2011-12/28/2012	2.61	13.64	10.98	0.00	0.01	0.98	1.00	0.00	0.90	0.91	1,712.19
Building Off Road Diesel	2.54	13.30	9.18	0.00	0.00	0.97	0.97	0.00	0.89	0.89	1,421.89
Building Vendor Trips	0.02	0.24	0.21	0.00	0.00	0.01	0.01	0.00	0.01	0.01	59.42
Building Worker Trips	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.01	0.01	230.87
Coating 12/17/2012-12/28/2012	62.14	0.03	0.62	0.00	0.00	0.00	0.01	0.00	0.00	0.00	90.19
Architectural Coating	62.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.62	0.00	0.00	0.00	0.01	0.00	0.00	0.00	90.19

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 8/29/2011 - 11/4/2011 - Site Grading

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.01	0.19	0.16	0.00	0.00	0.00	232.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping - No Winter Emissions							
Consumer Products	0.00						
Architectural Coatings	0.17						
TOTALS (lbs/day, unmitigated)	0.18	0.19	0.16	0.00	0.00	0.00	232.00

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
General office building	1.42	1.93	15.15	0.02	3.30	0.64	1,755.10
TOTALS (lbs/day, unmitigated)	1.42	1.93	15.15	0.02	3.30	0.64	1,755.10

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2012 Temperature (F): 60 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

6/27/2011 4:44:34 PM

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General office building		6.48	1000 sq ft	29.00	187.92	1,912.56
					187.92	1,912.56

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.2	0.6	99.2	0.2
Light Truck < 3750 lbs	7.0	1.4	95.7	2.9
Light Truck 3751-5750 lbs	24.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.2	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	2.9	58.6	41.4	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
General office building				35.0	17.5	47.5

Operational Changes to Defaults

Fugitive Dust Calculation Worksheets

Grading Fugitive Dust Emissions

UCI Alumni Center	Project Site	**1.0**	acres
		100%	Disturbed Daily
Mass Grading **54 days**		1.00	Acres Disturbed Daily
		43,560	Square Feet

Fugitive Dust Clearing Parameters - Scraping

Silt Content	Mean Vehicle Weight	Vehicle Miles Traveled
	ton	miles
6.9	**88.73**	0.87

Fugitive Dust Stockpiling Parameters

Silt Content	Precipitation Days	Mean Wind Speed Percent	TSP Fraction	Area (acres)	Area (square feet)
6.9	**10**	**100**	**0.5**	**0.1**	4356

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier	Mean Wind Speed	Moisture Content	Material/Day	Dirt Handled
	mph	%	cy	lb/day
0.35	**10**	**7.9**	**407**	18,861

Fugitive Dust Emissions from Construction Operations

Equations:

Scraping: PM10 Emissions (lb/day) = 1.5 x (silt content/12)$^{0.9}$ x (mean vehicle weight)$^{0.45}$ x VMT x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/1.5) x ((365-precipitation days)/235) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton) x (1 - control efficiency)

Description	Control Efficiency	PM_{10}	$PM_{2.5}$
	%	lb/day	lb/day
Scraping	**68**	1.17	0.24
Storage Piles	**68**	1.26	0.26
Material Handling	**68**	0.77	0.16
Total		**3.20**	**0.67**

20000
54 days

APPENDIX B

ARCHAEOLOGY REPORT

Discovery
Works, Inc

10591 Bloomfield Street
Los Alamitos, CA 90720
(562) 431-0300
www.discoveryworks.com

Cultural Resources Management & Outreach

June 15, 2011

Alex Marks, Associate Planner
Environmental Planning & Sustainability
750 University Tower
Irvine, CA 92697-2325

Dear Alex:

Subject: Draft Phase I Archaeological Study Report for Alumni Center at the University of California Irvine campus

Discovery Works, Inc. is pleased to submit this Phase I Archaeological Study Report for the proposed Alumni Center project on the University of California Irvine (UCI) campus (Fig. 1). The 2007 Long Range Development Plan (LRDP) Final Environmental Impact Report (FEIR) indicated that part of one archaeological site, CA-ORA-118B, potentially may be located within the proposed project boundaries. The FEIR report concluded that prior to development for CA-ORA-118B, "testing for significance if site is identified to be impacted and data recovery if site is significant" (FEIR LRDP 2007: Vol. II Chapter 4.4-3, Table 4.4-1). The Phase I Archaeological Study begins the assessment of the potential significance for site CA-ORA-118B, as required by the FEIR's mitigation measure (MM) Cul-1A.

Project Personnel

Discovery Works, Inc. project personnel included Beth Padon, Principal Archaeologist, and Chris Padon field technician. Ms. Padon is the President of Discovery Works, Inc., and served as Principal Investigator for the Alumni Center and CA-ORA-118B investigations.

Ms. Padon meets all of the qualifications for Principal Investigator and manager as detailed in Archeological and Historic Preservation; Secretary of Interior's Standards and Guidelines (Federal Register, Vol. 48, No. 190, 1983). She has a M.S. in Anthropology and thirty years of cultural resources management experience in California. For Discovery Works, she administers and directs archaeological and paleontological projects, historical studies, and coordination with Native American groups.

Archival Research

As part of determining the project's effect on this prehistoric site, this Phase I Archaeological Study included:

I-1. Archival research at University of California Los Angeles (UCLA) where the CA-ORA-118B collection has been curated,

I-2. A records check at the South Central Coastal Information Center, California State University Fullerton (CSUF), the local statewide clearing house for archaeological records and reports,

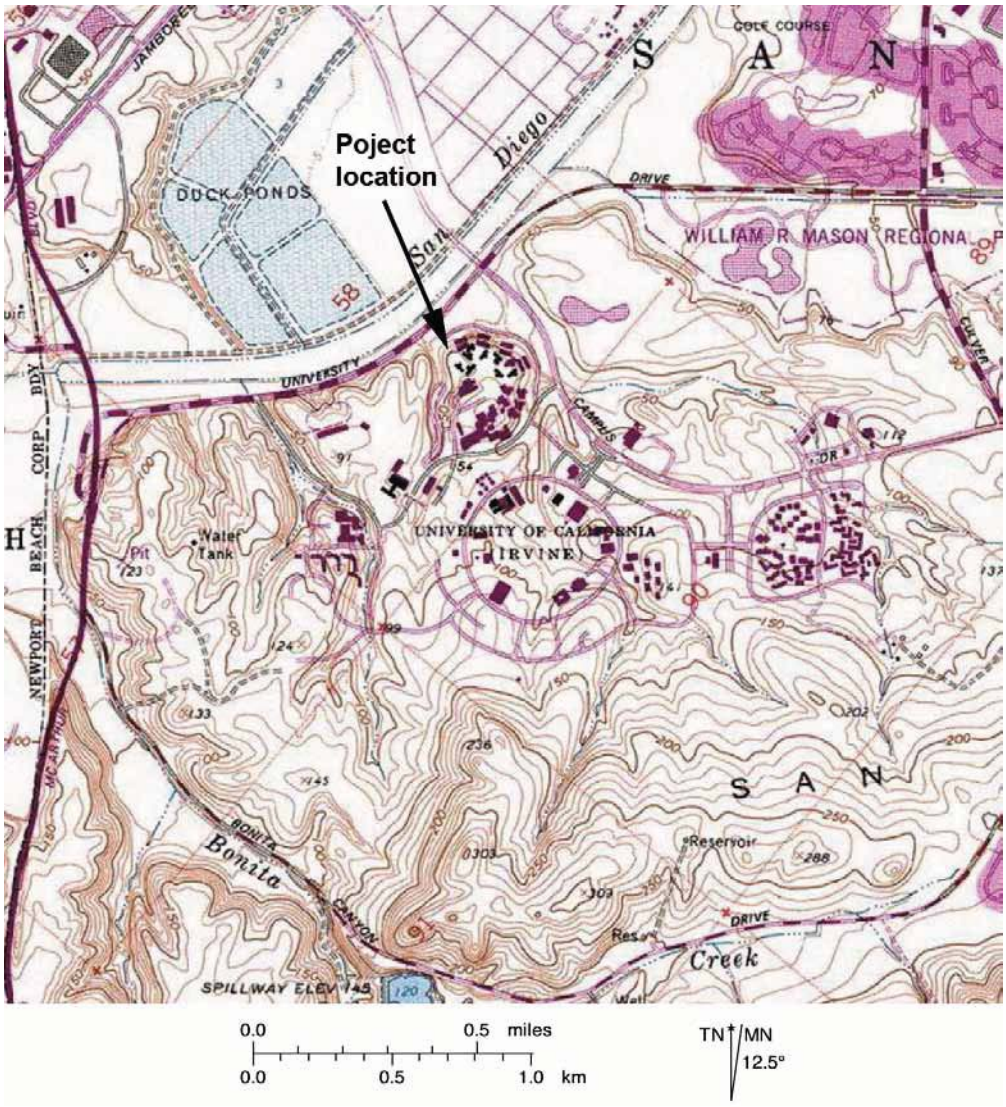

Fig. 1 Project location shown on USGS 7.5 topographic map, Tustin, 1978, photorevised 1981. (Project location on the most recent USGS map is required for the archives at the South Central Coastal Information Center.)

I-3. Contact staff at UCLA and at CSUF to check for any previous research that may include CA-ORA-118B, including student master's papers or independent studies,

I-4. Archival research at University of California Irvine, Langston Library maps and aerials,

I-5. A field visit to the site to review past modifications,

I-6. This report which reviews Phase I Study, and provides recommendations on the site's potential for yielding important information on the prehistory of the area.

On May 26, 2011, Discovery Works personnel conducted a records check at South Central Coastal Information Center, CSUF. This research examined the previous archaeological site records and archaeological survey reports for the UCI campus and the immediate surrounding area. David Adams first recorded archaeological site CA-ORA-118B in 1963 and UCLA students Charles Schwartz and Alma Lytton conducted an excavation later that same year (Chace 1966:15, Schroth 1979:49). The South Central Information Center did not have any field report for this 1963 archaeological investigation. In 1976, Jerry Howard and Gary Stickel conducted a pedestrian survey of the UCI campus and found only a portion of CA-ORA-118B

remained intact, because of construction for student housing had affected this site (Stickel and Howard 1976). They stated that the remnant of this site "can be seen in the face of the bluff just west of the arroyo and La Mirada dorm building" (Stickel and Howard 1976:9). They measured the site remnant as 30 by 5 meters and over 50 centimeters in depth (Howard, Jones, and McManus 1976). In 1988, Ron Bissell refers to their work to recommend further archaeological investigation for this intact portion, analysis of the recovered materials, and preparation of a site report. Bissell also reviewed the remnant of CA-ORA-118B in the field and stated that "the possibly preserved portion is located along the bluff to the east of the student housing area" (Bissell 1988:16).

Several articles in the Pacific Coast Archaeological Society Quarterly (1970, 1979, 1974, 1983) refer to site CA-ORA-118 as background in studies of other sites. None of them focus exclusively on this site. In 1970, Lester Ross describes shell ornaments, bone awls, and concave based, triangular projectile points at CA-ORA-118 (Ross 1970:Table 12). Ross cites an archaeological paper given by Alma Lytton in 1968 at the Society for California Archaeology meetings in San Diego, but I have not found a published copy of that presentation. In 1966, Follett published a regional fish analysis for the Newport Bay and coast of Orange County, and he analyzed the fish remains from CA-ORA-118. He recorded Leopard shark, Shovel nose Guitarfishes (ray), California Halibut, Spotted Sand Bass, and Slim Midshipman fish (Follett 1966:193). In 1983, Ron Douglas discussed the different types of glaucophane schist artifacts, a rare material for groundstone artifacts found in Orange County. He identified one such artifact from CA-ORA-118 (1983:94).

On May 26, I spoke with Wendy Teeter, curator of the archaeological collections for UCLA. She said that in 1978, UCLA had transferred Orange County artifacts to Constance Cameron, professor in the Anthropology Department at CSUF. The collections included sites, ORA-117, -118, and -119. With this information, I contacted Steven James, a professor at the Anthropology Department at CSUF, about the CA-ORA-118 collection. He believes that these artifacts are housed at CSUF Archaeological Research Facility located in Brea. On June 3, Dr. James verified this collection's location from his records and files. However, he won't be able to physically look for the collection until the end of June, because CSUF is now moving all the archaeological collections from the Brea facility to the Fullerton campus.

Our archival research also included checking with both UCLA and CSUF faculty for any previous research that may include CA-ORA-118B, such as student master's papers or independent studies. But we found none. A check of the on-line Anthropology Department master's papers from 1974 to the present at CSUF did not find any references to CA-ORA-118B.

On June 2, 2011, I conducted additional archival research of historic maps and aerial photos at UCI at the Langston Library, and at Environmental Planning, to determine if subsequent development had impacted this project location. This research focused on the period of construction for the Mesa Student Housing where site CA-ORA-118B had been recorded within the campus. Aerials dated 1965, 1968, and 1972 show the progression of construction for this portion of the campus and indicate that construction of the student housing and Mesa Road impacted CA-ORA-118 including locus B. These aerials also show that a portion of this mesa remained open and undeveloped except for landscaping.

Field Visit

On June 2, Beth and Chris Padon conducted an archaeological field visit to the project location. The proposed Alumni Center is situated on the north facing slope of a low, remaining knoll and overlooks the existing Mesa Court parking lot (Fig. 2). Campus building La Mirada

Fig. 2. Overview of the project from the knoll top. View to the north.

is located to the east and Arroyo is to the south. Mesa Road is located below and to the west of the proposed project.

We identified a project area of about 36 by 42 meters or area of potential effects (APE) as directed by MM Cul-1A. Our survey involved first, walking the perimeter of this APE and then, conducting a series of transects (1 to 2 meters apart) that followed level contours to examine the ground surface for any indications of prehistoric resources (Fig. 3). We examined the conditions of the proposed project, took photographs, and kept field notes. On the top of the knoll, we found exercise equipment, a picnic table, and a brass plaque which dedicated the olive trees to Gregory D. Blystone, from the Class of 1969 (Fig. 4). Grass covers most of this knoll. Non-native trees, shrubs, and vines cover the remaining area of the proposed project. The ground cover on the north facing slope limits ground visibility to about 40 percent. The ground surface along the west slope is not visible because of shrubs, low-lying ground cover, and bark mulch (Fig. 5). We found sprinkler heads within the landscaped slopes and an asphalt walkway on the far east side.

Fig. 3. Beth Padon conducting ground survey on the north-facing slope. View to the west.

Fig. 4. This area of the knoll is just south of the proposed building footprint. The boulder in the center contains the dedication plaque. View to the north.

Fig. 5. Overview of the dense vegetation on the west side of the project. View to the east from Mesa Road.

We found about ten fragments of shellfish, both chione and pecten, within the project area. These types of shellfish often are found in prehistoric middens, (the decaying organic food materials from prehistoric inhabitants). All of the shell fragments were located on the slope; two were found in a dirt path leading from the knoll top to the parking lot below. These fragments seem to be eroding downhill, away from their primary or intact location. We also noted numerous pieces of modern snail shells. At the bottom of the slope we noted more shellfish fragments of chione and pecten, but we found no other indications of prehistoric use such as chipped stone or groundstone artifacts (Fig. 6).

Because the ground was covered with grass and plants on the knoll top and the west slope, we looked for any non-grass and undisturbed area in the immediately vicinity. We found one such area (1 by 3 meters), west of the La Mirada and behind a fence (Fig. 7). Here, we located midden-like soil with pecten, chione, and abalone shellfish fragments (Fig. 8). This location fits with the previous descriptions for CA-ORA-118B and it suggests that additional evidence of this prehistoric site could be found beneath the grass and landscaping, within the proposed Alumni Center project site.

Fig. 6. Close-up of the shellfish fragments on either side of the scale and found near the bottom of the slope. Scale shows 10-centimeter intervals.

Fig. 7. La Mirada Building is behind the fence on the left and site midden is visible next to the smaller tree inside. View to the south.

Fig. 8. Close-up of midden, organic soil with shellfish fragments: chione, abalone, and pecten. Scale shows 10-centimeter intervals.

Recommendations

Based upon the archival research and archaeological field visit, it appears that a portion of this prehistoric site, CA-ORA-118B, may exist within the proposed project's site. We recommend that a Phase II testing program be implemented prior to land clearing, grading, or similar activities on the project site to evaluate the resources within the APE and to determine if this portion retains its integrity and could be a significant archaeological resource. This Phase II program would include:

II-1. Conduct hand-excavated subsurface investigations, which will involve careful review of the ground surface, a series of shovel test scrapes or post holes, and at least five, hand-excavated units of 1 by 1 meter size,

II-2. Analyze the materials collected, and

II-3. Provide a written report which contains a detailed, updated site map based upon the provided site plan map, a description of the methods, analysis and results, a discussion of site significance, and recommendations.

Based upon the preliminary field review, we will place the hand-excavation units in areas where there's minimal previous ground disturbance and where the proposed building will be placed. All subsurface investigations will be mapped from a primary datum and will follow standard archaeological excavation and recording procedures. We will excavate in arbitrary, 10 centimeter levels unless a clear stratigraphic profile appears. If natural stratigraphic layers are observable, natural layers will be followed. Units will be excavated until sterile soil is reached and all sediment will be screened through one-eighth inch hardware mesh screen unless it is obvious that the sediment is imported fill. If the soils are clayey, it may be necessary to use water-screening methods, and if that happens, then we will contact Environmental Planning to make the appropriate arrangements. The artifactual and ecofactual materials will be separated and tagged by the unit number and level. Any cultural features or distinctive aspects of the unit (such as a hearth feature or habitation floor) will be mapped and recorded, and excavated separately. The crew also will take Munsell Soil Color Chart readings and record the sediment composition. At least one wall of each completed unit will be photographed. Photographs will be taken throughout the work program to show progress and field discoveries.

If human remains are found during our excavation, we will follow the Native American Graves Protection Act Guidelines and State law [Health and Safety Code Sec.7050.5 and Public Resources Code Sec.15064.5 (f)]. And in accordance with LRDP FEIR Vol I page 4.4-18, we first would notify the County Coroner, who must then determine whether the remains are a law enforcement concern.

At the completion of the Phase II investigation, per MM Cul-1A, if an archaeological resource discovered within the APE is determined to be significant, we will provide a budget for the archaeological data recovery (Phase III) investigations, as required by MM Cul-1B. By taking a phased approach to investigations at CA-ORA-118B, work effort and budgets will more accurately reflect the depth and quality of the subsurface midden deposit, and its integrity.

If you have any questions concerning our Phase I Archaeological Study or the recommendations, please do not hesitate to contact me at my office at (562) 431-0300 or by e-mail at bpadon@discoveryworks.com.

Sincerely,

Beth Padon
Discovery Works, Inc.

cc: South Central Coastal Information Center, California State University, Fullerton

References

Adams, David
1963 Site Record for CA-ORA-118. On file at the South Central Coastal Information Center, California State University Fullerton.

Bissell, Ron M.
1988 Archaeological Resources Reconnaissance of the Long Range Development Plan Study Area, University of California, Irvine, Orange County, California, revised November 1988. On file at the South Central Coastal Information Center, California State University Fullerton, #0-939.

Brock, Jim, Mark A. Roeder, and John Elliott
1985 Archaeological, Paleontological, and Historical Resources Assessment Report for the U.C. Irvine North Campus Property. On file at the South Central Coastal Information Center, California State University Fullerton, 0r-774.

Butler, William B.
1974 The San Pedro Harbor Site: A Primary Subsistence Village on the Southern California Coast. *Pacific Coast Archaeological Society Quarterly*, Vol. 10:3 & 4, pp. 1-98.

Chace, Paul
1966 An Archaeological Survey in the Northwestern San Joaquin HIlls, Orange County, California. *Pacific Coast Archaeological Society Quarterly*, Vol. 2:2, pp 3-48.

Douglas, Ronald D.
1983 Some Notes on Groundstone artifacts of Glaucophane Schist from Archaeological sites in Orange County. *Pacific Coast Archaeological Society Quarterly*, Vol. 19:3 & 4, pp 90-94.

Duke, Curt
2001 Cultural Resource Assessment Cingular Wireless Facility No. SC025-01, Orange County, California. On file at the South Central Coastal Information Center, California State University Fullerton, #0-2475.

Follett, W. I.
1966 Fish Remains from Archaeological Sites at Irvine, Orange County, California. *Annual Report Archaeological Survey*, Department of Anthropology University of California, Los Angeles, Vol. 6. pp. 189-194. (and on file at the South Central Coastal Information Center, California State University Fullerton, #0-1131.)

Howard, Jerry B., James Jones, and James McManus
1976 Site Record for CA-ORA-118B. On file at the South Central Coastal Information Center, California State University Fullerton.

Hurd, Gary S.
1980 Cultural Resources of the Irvine Campus. On file at the South Central Coastal Information Center, California State University Fullerton.

Hurd, Gary S., and Michael E. Macko
1989 Archaeological Test Results, Significance Evaluations, and Recommendations for Mitigation of Impacts at CA-Ora-115A,-115B, -116, and -121B, University of California, Irvine, North Campus. On file at the South Central Coastal Information Center, California State University Fullerton, #0R-1708.

MACTEC Engineering and Consulting
2011 Report of Supplemental Geotechnical Exploration Proposed Alumni Center. On file at the Environmental Planning and Sustainability Office, University of California, Irvine.

McCawley, William
1996 *The First Angelinos: The Gabrielino Indians of Los Angeles*. A Malki Museum Press/ Ballena Press Publication, Banning and Novato, California.

Ross, Lester A.
1970 4-ORA-190; A Descriptive Site Report of a Late Prehistoric Horizon Site in Orange County, California. *Pacific Coast Archaeological Society Quarterly*, Vol.6:2 & 3, pp. 1-148.

Schroth, Adella
1979 A History of Archaeological Research on Irvine Ranch Property: the Evolution of a Company Tradition. *Pacific Coast Archaeological Society Quarterly*, Vol. 15:3, 45-67.

Stickel, E. Gary, and Jerry B. Howard
1966 Final Report of a Cultural Resource Survey of the University of California, Irvine. On file at the South Central Coastal Information Center, California State University Fullerton, #0-574.

University of California, Irvine
1989 Long Range Development Plan: Volume 1. On file with Environmental Planning & Sustainability, UCI.
2007 Long Range Development Plan: A Framework to Guide Physical Development at the University of California, Irvine, Through 2025-2026. On file with Environmental Planning & Sustainability, UCI.

APPENDIX C

GEOTECHNICAL ANALYSIS

REPORT OF SUPPLEMENTAL GEOTECHNICAL EXPLORATION
PROPOSED ALUMNI CENTER

UNIVERSITY OF CALIFORNIA, IRVINE
MESA ROAD AND UNIVERSITY DRIVE
IRVINE, CALIFORNIA

Prepared for:

UNIVERSITY OF CALIFORNIA, IRVINE

Irvine, California

March 10, 2011

MACTEC Project 4953-11-0031.08

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engineering and constructing a better tomorrow

March 10, 2011

Mr. Francesco Porcella
Senior Project Manager
University of California, Irvine
Design & Construction Services
5201 California Avenue, Suite 250
Irvine, CA 92697

Subject: **LETTER OF TRANSMITTAL**
Report of Supplemental Geotechnical Exploration
Proposed Alumni Center
Mesa Road and University Drive
Irvine, California
MACTEC Project 4953-11-0031.08

Dear Mr. Porcella:

We are pleased to submit the results of our supplemental geotechnical exploration for the proposed Alumni Center to be constructed within the campus of University of California, Irvine (UCI). Previous to this exploration, we performed another exploration for the same project and submitted a report of our findings to you on February 15, 2011. The current exploration was conducted according to the scope authorized by your Work Authorization Amendment No. 1.1 dated February 10, 2011. The work was performed in general accordance with our proposal and the professional service agreement (PSA DC11003) between your UCI and MACTEC Engineering and Consulting, Inc. dated January 11, 2011 and subject to the terms and conditions contained in that agreement.

The scope of our services was planned with you and other UCI personnel. The results of our investigation are presented in this report.

MACTEC Engineering and Consulting, Inc.
5628 East Slauson • Los Angeles, CA 90040-1554 • Phone: 323.889.5300 • 323.889-5398

www.mactec.com

It has been a pleasure to be of professional service to you. Please call if you have any questions or if we can be of further assistance.

Sincerely,

MACTEC Engineering and Consulting, Inc.

Debanik Chaudhuri, Ph.D., G.E.
Senior Engineer

Marshall Lew, Ph.D., G.E.
Senior Principal Engineer/Vice President

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(6 copies submitted)

REPORT OF SUPPLEMENTAL GEOTECHNICAL EXPLORATION
PROPOSED ALUMNI CENTER

UNIVERSITY OF CALIFORNIA, IRVINE
MESA ROAD AND UNIVERSITY DRIVE
IRVINE, CALIFORNIA

Prepared for:

UNIVERSITY OF CALIFORNIA, IRVINE

Irvine, California

MACTEC Engineering and Consulting, Inc.

Los Angeles, California

March 10, 2011

Project 4953-11-0031.08

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EXECUTIVE SUMMARY

We have completed our supplemental geotechnical exploration of the site for the proposed Alumni Center to be constructed within the University of California, Irvine (UCI) campus near the intersection of Mesa Road and University Drive. Prior to this investigation, we explored two sites (adjacent to the current exploration location) for the same project and submitted a report to you on February 15, 2011 summarizing our findings. The current exploration was focused on an area that appeared favorable from geotechnical and seismic performance considerations, based on the results of our previous exploration.

Based on the available information, the proposed Alumni Center will be a two to three-story building with a footprint of about 10,000 square feet. It is our understanding that the actual location for the building has not been finalized yet. One of the objectives of our investigation was to help UCI identify a suitable site for the building from a geotechnical standpoint. Our subsurface explorations, data collected from the investigation, and engineering analyses are summarized below.

The current exploration was focused on an area near the intersection of Mesa Road and Mesa Court. The area of exploration extended about 300 feet towards east[1] from the intersection and mostly contained on the south side of Mesa Court. The previously explored sites were located within two parking lots on the east and west side of Mesa Road. They were referred to as the East and West sites, respectively.

We explored the soil conditions at the current site by drilling ten borings. We have also reviewed a prior geotechnical report prepared by Geobase in 1999 for Mesa Court Housing which is located south of the current exploration site. However, we did not rely upon the data contained in the Geobase report to perform our analysis or form our opinions.

We encountered fill soils in all our borings. The depth of fill ranged between 1½ and 13 feet below the existing ground surface. The deepest fill was encountered in Boring B-20 near the intersection of Mesa Road and Mesa Court. The natural soil underlying the fill material consists of young

[1] *For the purpose of this report, Mesa Road is assumed to run in a north-south direction and University Drive is located at the north end of Mesa Road.*

alluvium deposits underlain by bedrock of Paularino Member of the Topanga formation. The alluvium consists of silty sand, sandy silt, sandy clay, and clay materials. The consistency of the alluvial soil varies from loose/soft to very dense/stiff. The bedrock is composed of siltstone and sandstone. The depth of bedrock varies considerably across the site. The shallowest bedrock was encountered in Boring B-26 at a depth of 9½ feet below existing grade (approximate elevation 25.5 feet MSL) and the deepest bedrock was encountered in Borings B-19 and B-25 at around 28 feet below existing grade (approximate elevation 4 feet MSL)

Our analyses indicate that liquefaction is not a likely hazard at this site. Although the site is located in close proximity to San Diego Creek, lateral spread is not expected at this site due to the absence of liquefaction. However, one of the previous sites we explored in January 2011, located slightly north of the current area of exploration had some liquefaction potential as well as potential for lateral spreading.

Based on our current exploration and prior explorations of two sites, it appears that the potential for liquefaction and associated hazard diminishes southward from University Drive. Our current exploration and analyses indicate that the area south of Mesa Court may be considered to have low liquefaction potential.

1.0 SCOPE

This report presents the results of our supplemental field exploration and laboratory testing for the proposed Alumni Center to be constructed within the UCI campus. Previously, we have performed a geotechnical exploration for the subject project, and we submitted a report of our findings to you on February 15, 2011. Two sites that were investigated during our prior exploration are located adjacent to the current investigation location. The current site was selected on the basis of data obtained from our prior exploration, which indicated that current site may be more suitable from geotechnical considerations.

This report also presents the results of our liquefaction analyses. Foundation recommendations are not provided in this report. It is our understanding that the actual location for the building has not been finalized yet. One of the objectives of our investigation was to help UCI identify a suitable site for the building from a geotechnical standpoint. The general location of the sites is shown on Figure 1, Vicinity Map.

The main objectives of this investigation were to determine the physical characteristics of the soils at the site, and evaluate the existing soil and ground-water conditions. Also, we were to evaluate the liquefaction potential and its impact on the proposed foundations. Following tasks were performed to meet these objectives:

- Review of available data including our in-house data from prior investigations, publicly available data including topographic and geologic maps, and seismic hazard maps. We have also reviewed the following report prepared by GEOBASE:
    - Preliminary Geotechnical Investigation, Undergraduate Student Housing Expansion, Phase 2, Mesa Court, UCI Project No. 996315A, University of California, Irvine, California, dated October, 1999 (by GEOBASE).
- Performance of field exploration consisting of drilling of a total of ten exploratory soil borings.
- Performance of laboratory testing of soil samples collected from the borings.
- Performance of analysis to evaluate liquefaction potential of the sites.
- Preparation of this report summarizing our findings.

Performance of a limited geologic-seismic hazards evaluation was performed as a part of our prior exploration. The findings from our previous evaluation are included in this report. Foundation recommendations and detailed geologic evaluation were not included in our scope of work. The assessment of general site environmental conditions for the presence of contaminants in the soils and ground water of the site was also beyond the scope of this investigation.

The locations of borings of our current exploration are presented on Figure 2, Exploration Plan. The figure also shows the locations of our prior exploration. The locations of borings drilled by GEOBASE near the current site are also indicated on the figure. The results of the current field explorations and laboratory tests are presented in Appendix.

2.0 PROJECT DESCRIPTION

The project site is located within the UCI campus near the intersection of Mesa Road and University Drive. Based on the available information, the proposed Alumni Center will be a two or three-story building with a footprint of about 10,000 square feet. It is our understanding that the actual location for the building has not been finalized yet. Several potential sites are under consideration at this time. The current exploration was performed at a site near the intersection of Mesa Road and Mesa Court. Two sites that were previously explored are adjacent to the current site.

3.0 SITE CONDITIONS

The site is located near the intersection of Mesa Road and Mesa Court, south of University Drive. Mesa Court is a two-lane road that leads from Mesa Road to the parking lot on the east side of Mesa Road (Parking Lot 14). The exploratory borings were drilled on Mesa Road, Mesa Court, and on the lawn areas between Mesa Court and the existing housing complex. Mesa Court and the lawn areas are generally level except for the area near Boring B-26 where the ground slopes upward in a southerly direction. Average gradient of the ground slope is about 1:5 (vertical to horizontal). The ground slope is steeper in the westerly direction where the slope ascends from Mesa Road. Mesa Road slopes down in a northerly direction towards University Drive.

The road surfaces of Mesa Road and Mesa Court are paved with asphalt concrete. The lawn area on the north side of the housing complex is generally level and is planted with small tress. According to the plan, various underground utilities including storm drains, gas and electric lines cross the sites.

The channel of San Diego Creek is located north of University Drive, about 300 feet north from the north edge of Mesa Court. Based on the available plan, the bottom of the channel is located at least 18 feet below University Drive. The ground contours shown on the plan do not extend to the middle of the channel. At the time of our investigation, water was observed in the channel.

4.0 EXPLORATIONS AND LABORATORY TESTS

The soil conditions beneath the site were explored by drilling ten borings at the locations shown on Figure 2. The borings were drilled between February 11 and 15, 2011. The borings were drilled to depths ranging from about 20½ to 41½ feet below the existing grade. The borings were extended at least five feet into relatively competent bedrock. Details of the explorations and the logs of the borings are presented in the Appendix.

Laboratory tests were performed on selected samples obtained from the borings to aid in the classification of the soils and to determine the pertinent engineering properties of the soils. The following tests were performed:

- Moisture content and dry density determinations.
- Sieve Analysis
- Atterberg Limits
- Direct shear.
- Consolidation.

All testing was done in general accordance with applicable ASTM specifications. Details of the laboratory testing program and test results are presented in Appendix A. Corrosion tests on selected soil samples were performed by Schiff Associates under a subcontract with MACTEC. The results of the corrosion tests are also included in the Appendix.

5.0 GEOLOGIC-SEISMIC HAZARDS

Our limited study of geologic conditions and seismic hazards for the sites is presented in this section.

5.1 GEOLOGIC SETTING

The proposed development is located on the northern edge of the San Joaquin Hills, northwest-trending hills in the southern Los Angeles Basin. The San Joaquin Hills are located in the coastal portion of California's Peninsular Ranges geomorphic province. This province extends northwesterly from Baja California into the Los Angeles Basin and westerly into the offshore area, including Santa Catalina, Santa Barbara, San Clemente and San Nicolas islands. The Peninsular Ranges province is characterized by northwest/southeast trending alignments of mountains and hills and intervening basins, reflecting the influence of northwest trending major faults and folds controlling the general geologic structural fabric of the region.

The current site is underlain by artificial fill, alluvium, and bedrock. The fill encountered in our borings ranged from 1½ to 13 feet in thickness and consisted of mixtures of sand, silt and clay. The alluvium underlying the fill consisted of layers of silty sand, clayey sand, silt, and clay. Bedrock of the Palaurino Member of the Topanga formation underlies the fill and alluvium. It consists of sandstone and siltstone. Depth of ground water ranged from 12 to 25 feet below the ground surface in four of the supplemental borings; the depth to ground water was not determined in other six supplemental borings.

5.2 SEISMIC HAZARD

The site is not within a currently established Alquist-Priolo Earthquake Fault Zone for surface fault rupture hazard. The closest active fault to the site with the potential for surface fault rupture is the offshore segment of the Newport-Inglewood fault zone located approximately 5 miles to the southwest. The San Joaquin Hills blind thrust fault, which underlies the sites at depth, does not come to the ground surface and is not considered a potential source of fault surface rupture. Based on the available geologic data, active or potentially active faults with the potential for surface fault rupture are not known to be located directly beneath or projecting toward the site. Therefore, the

potential for surface rupture due to fault plane displacement propagating to the surface at the site is considered low.

The location of the site relative to known active or potentially active faults indicates the site could be subjected to significant ground shaking. This hazard is common in Southern California and the effects of ground shaking can be mitigated by proper engineering design and construction in conformance with current building codes and engineering practices.

The site is located near the boundary of an area identified by the California Division of Mines and Geology as having a potential for liquefaction. An analysis of the liquefaction potential and the potential for lateral spreading was performed as part of this evaluation and the results are presented in Section 7.

6.0 SOIL CONDITIONS

Soil materials encountered in our borings consisted of fill, alluvium, and bedrock of the Paularino Member of the Topanga formation, in that order. Fill soils were encountered in all of the borings. The thickness of the fill varied from 1½ to 13 feet below the existing ground surface. Deeper fill could occur between borings. The greatest fill thickness of 13 feet was encountered in boring B-20 near the centerline of Mesa Road, just west of the intersection with Mesa Court. The fill material consisted of silty sand, clayey sand, sandy silt, and sandy clay. The consistency of fill materials was generally medium dense/stiff. Some pockets of loose/soft materials were also encountered. Alluvium deposits of relatively recent origin were encountered below the fill materials. The alluvium consisted of interbedded layers silty sand, clayey sand, silt and clay. The bedrock underlying the alluvium deposits at the site consists of sandstone and siltstone of the Topanga formation. In general, the upper portion of the bedrock directly below the fill or alluvial material was weathered and slightly cemented sandstone, which can be described as very dense sand. However, the degree of weathering was found to decrease with depth. The siltstone underlying the sandstone was found to be less weathered and can generally be described as competent.

Ground-water was encountered in our soil borings. As we performed rotary-wash type borings, measurement of ground water involved bailing out the drill mud and cleaning the walls of the boreholes at the end of drilling and waiting for ground water to come to a stable elevation. Using this procedure, the depth to ground water was measured in four borings.

The depth of ground water ranged between 12 to 25 feet below ground surface in the four borings. In terms of elevation, the measured ground-water was between elevations 9 and 19 feet (MSL). The ground-water encountered in some of the borings may indicate the presence of perched water over relatively impermeable soils.

The results of the corrosivity tests performed by Schiff Associates indicate that the existing fill soils are corrosive to severely corrosive to ferrous metals. Minimum resistivity, soluble chloride and soluble sulfate contents are presented in Table 1 below. The detailed results of the corrosion tests are included in the Appendix.

Table 1. Results of Corrosivity Tests

Boring No.	Depth (ft)	Min. Resistivity (ohm-cm)	Soluble sulfate (ppm)	Soluble Chloride (ppm)
B-22	26	791	184	146
B-24	1 to 8	884	132	71

Prepared by DC 03/09/11
Checked by NH 03/10/11

7.0 LIQUEFACTION AND LATERAL SPREADING

7.1 LIQUEFACTION

Liquefaction potential is greatest where the ground-water level is shallow, and submerged loose, fine sands or silts occur within a depth of about 50 feet or less. Liquefaction potential generally decreases as grain size and clay content increase. As ground acceleration and shaking duration increase during an earthquake, liquefaction potential increases. According to the map showing Seismic Hazards Zones for the Tustin Quadrangle published by the California Division of Mines and Geology (CDMG 2001), the site located near the boundary of a designated "Liquefaction Hazard Zone", with a portion of the site is within a designated zone. The limits of liquefaction hazard zone in the vicinity of the sites are shown on Figure 3.

For evaluation of the liquefaction potential, we computed the peak ground acceleration (PGA) for the ground motion at the site with a 2% probability of exceedance in 50 years using the computer program EZ-FRISK, Version 7.51. In our calculations, we corrected the PGA to be compatible with a Magnitude 7.5 earthquake. The resulting PGA of 0.475g corresponds to the PGA for the Maximum Considered Earthquake (MCE). To obtain the PGA for use in liquefaction analyses, the MCE PGA was multiplied by 2/3 to obtain a PGA of 0.32g for the Design Response Spectrum (DRS) in accordance with the 2010 California Building Code (CBC).

Liquefaction analysis was performed according the procedures outlined by Youd et al. (2001) and Idriss and Boulanger (2008). To estimate seismically-induced ground settlement, procedures outlined by Tokimatsu and Seed (1987) and Ishihara and Yoshimine (1992) were used. For our analysis we assumed a ground water depth of 10 feet below the ground surface, which is the historic high ground water depth determined by CDMG.

The analyses were performed using the data collected from our soil borings. One set of analysis was performed for each boring. In addition to field data, laboratory test results including fines contents and Atterberg Limits were also used in the analyses. In our analyses, we assumed that soils with fines content greater than 35 per cent and plasticity index (PI) greater than or equal to 7 will not liquefy as suggested by Idriss and Boulanger (2008).

Our analyses indicate that the liquefaction potential of the current site is low. Minor seismically-induced ground settlement, estimated to be less than ¼ inch may be expected.

7.2 LATERAL SPREADING

Liquefaction-induced lateral spreading of ground can occur where the ground is sloping and also can occur in a level ground condition with an open face or channel. The ground on the north of the current area of exploration slopes towards open face of San Diego Creek. As a result, lateral spreading is a potential hazard this site. However, due to the low likelihood of liquefaction occurring at the site, we conclude that lateral spreading is not likely to affect the area of our current exploration.

In our previous report of February 15, 2011 we presented the results of our analyses for two other sites. One of the sites (the East site) is located north of the current area of exploration. Based on our analyses we estimated that lateral spreading on the order of 1.8 feet may be expected at the East site. It appears that the likelihood of liquefaction diminishes towards the south, away from San Diego Creek.

8.0 GENERAL LIMITATIONS

Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical consultants practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this report. This report has been prepared for University of California, Irvine and their design consultants to be used solely in the design of the proposed Alumni Center. The report has not been prepared for use by other parties, and may not contain sufficient information for purpose of other parties or other uses.

9.0 REFERENCES

American Society of Civil Engineers (ASCE), 2005, Minimum *Design Loads for Buildings and Other Structures*, SEI/ASCE 7-05.

California Division of Mines and Geology (CDMG), 2001, *Seismic Hazard Zone Report for the Tustin 7.5-Minute Quadrangle, Orange County, California*.

Idriss, I. M. and Boulanger, R. W., 2008, *Soil Liquefaction during Earthquakes*, MNO-12, Earthquake Engineering Research Institute, Oakland, California.

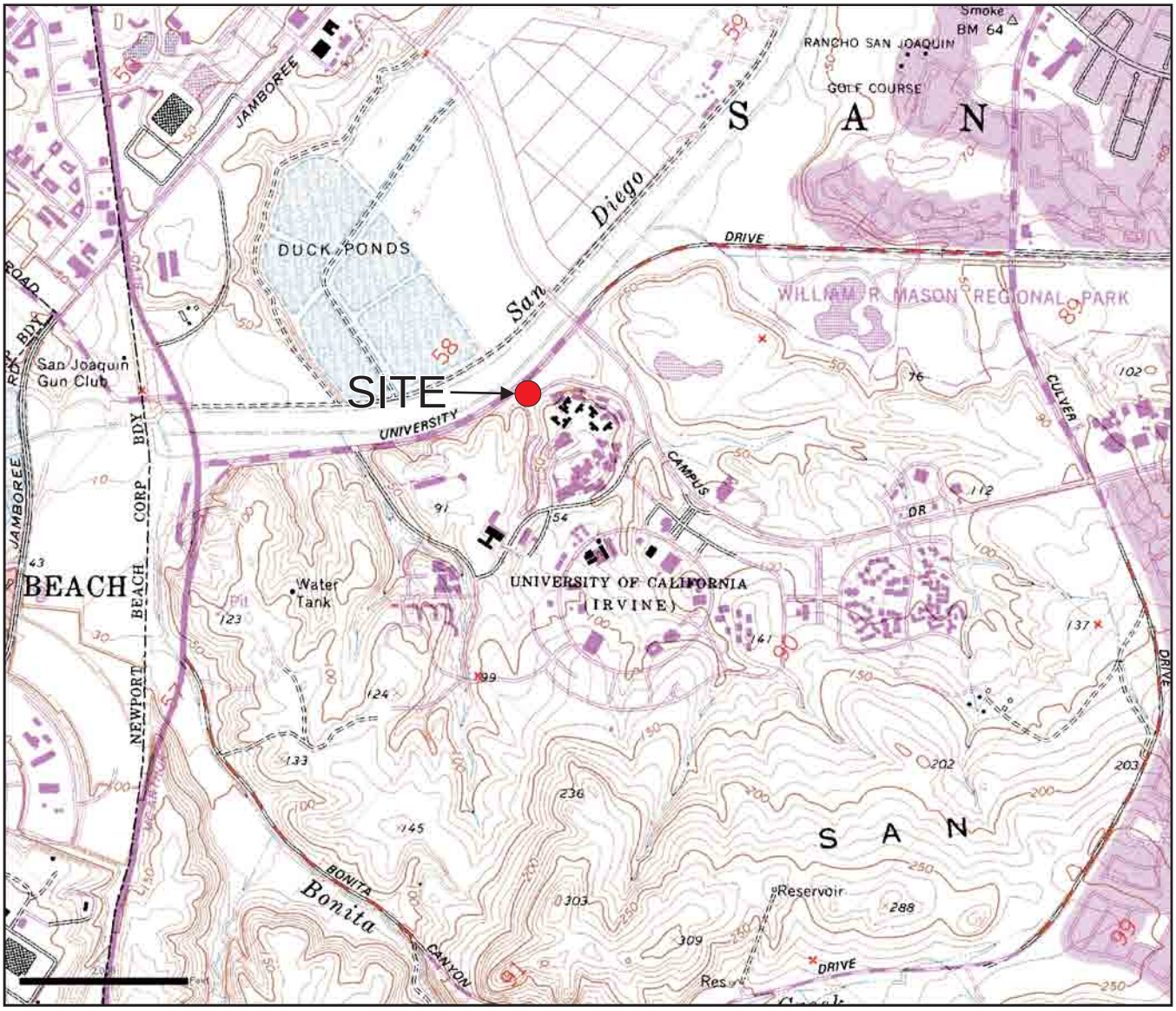
Ishihara, K. and Yoshimine, M. 1992, *Evaluation of Settlements in Sand Deposits Following Liquefaction During Earthquakes*, Soils and Foundations, Vol. 32, No. 1, pp. 173-188.

Tokimatsu, K. and Seed, H. B., 1987, Evaluation *of Settlements in Sands due to Earthquake Shaking*, Journal of Geotechnical Engineering, ASCE, Vol. 113, No. GT8, pp. 861-878.

Youd, T. L. and seventeen others, 2001, *Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 198 NCEER/NSF Workshops on Evaluation of Liquefaction Resistance of Soils*, Journal of Geotechnical and Geoenvironmental Engineering, ASCE, Vol. 127, No. 10, pp. 817-833.

Youd, T. L., Hansen, C. M., and Bartlett, S. F., 2002, *Revised Multilinear Regression Equations for Prediction of Lateral Spread Displacement*, Journal of Geotechnical and Geoenvironmental Engineering, ASCE, Vol. 128, No. 12, pp. 1007-1017.

FIGURES



Base Map:
U.S. Geological Survey 7.5-Minute topographic map (Tustin quadrangle, photorevised 1981)

COORDINATES

Latitude : 33.64901°
Longitude : -117.84442°

0 500 1000
Meter

0 2000 4000
Feet

N

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5628 E. Slauson Ave., Los Angeles, California 90040
(323) 889-5300, fax (323) 889-5398

Figure 1 - Vicinity Map

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DATE:	3/2/11	
SCALE:	1:24,000	
DRAWN BY:	PER/PWK	
CHECKED BY:	DC	

Explanation

- B28 — Geotechnical Boring (current MACTEC investigation)
- C8 — Cone Penetration Test (prior MACTEC investigation)
- B1 — Geotechnical Boring (prior MACTEC investigation)
- B5 — Geotechnical Boring (Geobase 1999)

EAST SITE

WEST SITE

UNIVERSITY DRIVE

MESA ROAD

BASEBALL FIELD

HOUSING OFFICE BUILDING

COMMUNITY CENTER

MARIPOSA

PALO

PLAYA

NUBES

BAHIA

SIERRA

LAGO

ARROYO

24.34 22.56 10.90 22.90 23.03 12.68 22.23 27.86 22.90 11.42 30.91 33.04 32.44 44.56 36.23 52.88 58.61

30 40 50 60

0 50 100 200 300 400 Feet

Path: G:\4953_Geotech\2011\110031_UCI\GIS\Figure_2_Exploration_map3.mxd

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FIGURE 2 - Exploration Map
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JOB NO.: 4953-11-0031	REVISIONS:
DATE: 12-23-10	Date Saved: 3/8/2011 2:57:15 PM
SCALE: 1 inch = 100 feet	
DRAWN BY: PER/PWK	
CHECKED BY: DC	

References:
CAD file provided by UCI on 12-22-10
Base:
USGS, 2010, Orange County, CA 133UA, Digital Orthophoto Project, May 2010.

Explanation

- B28 — Geotechnical Boring (current MACTEC investigation)
- C8 — Cone Penetration Test (prior MACTEC investigation)
- B1 — Geotechnical Boring (prior MACTEC investigation)
- B5 — Geotechnical Boring (Geobase 1999)
- Liquefaction Hazard Zone (CGS, 2002)

EAST SITE

WEST SITE

UNIVERSITY DRIVE

MESA ROAD

MARIPOSA

PLAYA

PALO

SIERRA

LAGO

BASEBALL FIELD

0 50 100 200 300 400 Feet

References:
CAD file provided by UCI on 12-22-10
Base:
USGS, 2010, Orange County, CA 133UA, Digital Orthophoto Project, May 2010.

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FIGURE 3 - Liquefaction Hazrad Zone Map
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JOB NO.: 4953-11-0031	REVISIONS:
DATE: 12-23-10	Date Saved: 3/8/2011 3:01:39 PM
SCALE: 1 inch = 100 feet	
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CHECKED BY: DC	

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APPENDIX

EXPLORATIONS AND LABORATORY TESTS

APPENDIX

EXPLORATIONS AND LABORATORY TESTS

EXPLORATIONS

The soil conditions beneath the two sites were explored by drilling 10 borings at the locations shown on Figure 1. The borings were drilled to depths of 20½ to 41½ feet below the existing grade using 5-inch-diameter rotary wash-type drilling equipment with drilling mud to prevent caving. In some of the boreholes, the mud was removed following completion of the drilling to permit measurements of the water level.

The soils encountered were logged by our field technician and undisturbed and bulk samples were obtained for laboratory inspection and testing. The logs of the borings are presented on Figures A-1.1 through A-1.10b; the depths at which undisturbed samples were obtained are indicated to the left of the boring logs. The number of blows required to drive the Modified California sampler 12 inches using a 140 hammer falling 30 inches is indicated on the logs. In addition to obtaining undisturbed samples, standard penetration tests (SPT) were also performed; the results of the tests are indicated on the logs. The soils are classified in the accordance with the Unified Soil Classification System described on Figure A-2.

LABORATORY TESTS

Laboratory tests were performed on selected samples obtained from the borings to aid in the classification of the soils and to determine their engineering properties.

The field moisture content and dry density of the soils encountered were determined by performing tests on the undisturbed samples. The results of the tests are shown to the left on the boring logs.

Direct shear tests were performed on selected undisturbed samples to determine the strength of the soils. The tests were performed after soaking to near-saturated moisture content and at various surcharge pressures. The yield-point values determined from the direct shear tests are presented on Figure A-3, Direct Shear Test Data.

Confined consolidation tests were performed on 2 undisturbed samples to determine the compressibility of the soils. Water was added to the samples at the beginning of the tests. The results of the tests are presented on Figure A.4, Consolidation Test Data.

To determine the particle size distribution of the soils and to aid in classifying the soils, mechanical analyses were performed on 5 samples. The results of the mechanical analyses are presented on Figure A-5.1 through A-5.3, Particle Size Distribution.

In addition to the full mechanical analyses, tests to determine the percentage of fines (material passing through a -200 sieve) in selected samples were performed. The results of these tests are presented on the boring logs.

Atterberg Limit tests were performed on selected samples to determine plasticity of the soil and to aid classifying soils. The results of these tests are presented on the boring logs.

Soil corrosivity tests were performed on selected samples of the on-site soils. The tests were performed by Schiff Associates. The test results are presented at the end of this appendix.

BORING B-19

DATE DRILLED: February 14, 2011
EQUIPMENT USED: Rotary Wash
HOLE DIAMETER (in.): 4-7/8
ELEVATION: 28 feet **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.		
	0						ML	5-inch thick Asphalt Concrete, no Base Course FILL - SANDY SILT - moist, reddish brown, trace gravel
							SM	FILL - SILTY SAND - moist, olive brown, with gravel
	5		13.5	119	22		SC	FILL - CLAYEY SAND - moist, olive brown, fine to medium-grained, with gravel
	10		12.2	121	61		SM	ALLUVIUM SILTY SAND - dense, moist, brown-gray, fine to medium-grained, trace clay
	15	23					SC	CLAYEY SAND - medium dense, moist, olive-brown, fine to medium-grained, trace fine gravel (42% Passing No. 200 Sieve, LL=34, PI=15)
	20		24.3	101	31		CH	FAT CLAY - very stiff, moist, olive-gray, trace fine sand, high plasticity, contains carbonate nodules intermixed (LL=64, PI=33)
	25	34					SP	POORLY GRADED SAND - dense, wet, light olive-gray, fine to medium-grained (20% Passing No. 200 Sieve) Hard drilling BEDROCK - TOPANGA FORMATION SANDSTONE - slightly moist, some gravel, poorly cemented
	30		8.7	135	50/5"			
	35	75/10"						SILTSTONE - gray, weak rock Interbedded with Sandstone END OF BORING AT 36½ FEET
	40							NOTES: Hand augered upper 5 feet due to utilities. Ground water not measured.

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE; REFER TO PLOT PLAN FOR MORE ACCURATE LOCATION INFORMATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DW
Prepared By: JF
Checked By: DC

Supplemental Exploration
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LOG OF BORING
Project: 4953-11-0031.08 Figure: A-1.1a

BORING B-19 (Continued)

DATE DRILLED: February 14, 2011
EQUIPMENT USED: Rotary Wash
HOLE DIAMETER (in.): 4-7/8
ELEVATION: 28 feet **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.
	45					
	50					
	55					
	60					
	65					
	70					
	75					
	80					

Boring backfilled with cement bentonite and patched with asphalt concrete.

* Number of blows required to drive Modified California sampler 12 inches using a 140 pound hammer falling 30 inches.

** Elevation obtained from site plan provided by University of California, Irvine.

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE; REFER TO PLOT PLAN FOR MORE ACCURATE LOCATION INFORMATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Field Tech: DW
Prepared By: JF
Checked By: DC

Supplemental Exploration
Proposed Alumni Center
University of California, Irvine, California

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LOG OF BORING
Project: 4953-11-0031.08 Figure: A-1.1b

B12SOIL_CRANDALL (NO DECIMAL) 110031_19-28.GPJ LAW_CRAN.GDT 3/10/11

BORING B-20

DATE DRILLED: February 11, 2011
EQUIPMENT USED: Rotary Wash
HOLE DIAMETER (in.): 4-7/8
ELEVATION: 32 feet **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.	
	0						4-inch thick Asphalt Concrete, no Base Course
						CL	FILL - SANDY LEAN CLAY - moist, reddish brown
						SM	FILL - SILTY SAND - moist, light brown to tan, fine to medium-grained, trace fine gravel
	5		12.9	121	47	SM/SC	FILL - SILTY SAND to CLAYEY SAND - moist, reddish brown, fine to medium-grained
	10		10.6	126	63	CL	FILL - SANDY LEAN CLAY - moist, dark brown, trace silt
						SC	ALLUVIUM CLAYEY SAND - moist, light brown, fine to coarse-grained
	15	14					BEDROCK - TOPANGA FORMATION SANDSTONE - fine to medium-grained, weak rock, trace iron oxide (15% Passing No. 200 Sieve)
	20		5.6	107	80/11"		Becomes slightly moist, light brown, fine-grained
	25	61					END OF BORING AT 26½ FEET.
	30						
	35						
	40						

NOTES:

Hand augered upper 5 feet due to utilities. Boring bailed to 25 feet below ground surface after drilling. Ground water measured at 19½ feet below ground surface 45 minutes after completion of drilling. Boring backfilled with cement bentonite and patched with asphalt concrete.

* Number of blows required to drive Modified California sampler 12 inches using a 140 pound hammer falling 30 inches.

** Elevation obtained from site plan provided by University of California, Irvine.

Field Tech: DW
Prepared By: JF
Checked By: DC

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE; REFER TO PLOT PLAN FOR MORE ACCURATE LOCATION INFORMATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

B12SOIL_CRANDALL (NO DECIMAL) 110031_19-28.GPJ LAW_CRAN.GDT 3/10/11

Supplemental Exploration
Proposed Alumni Center
University of California, Irvine, California

MACTEC

LOG OF BORING
Project: 4953-11-0031.08 Figure: A-1.2

BORING B-21

DATE DRILLED: February 11, 2011
EQUIPMENT USED: Rotary Wash
HOLE DIAMETER (in.): 4-7/8
ELEVATION: 32 feet **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.	
	0						4-inch thick Asphalt Concrete, no Base Course FILL - SANDY LEAN CLAY with Gravel - moist, dark brown
	5		12.4	122	35		ALLUVIUM SANDY LEAN CLAY - very stiff, moist, brown to orange brown
	10		14.2	119	74		BEDROCK - TOPANGA FORMATION SILTSTONE - hard, moist, trace fine sand, trace iron oxide
	15	30					SANDSTONE - medium dense, moist, light brown, fine to medium-grained, trace coarse sand, trace iron oxide, weak rock
	20		15.8	101	72/10"		Trace fine gravel END OF BORING AT 21 FEET.
	25						
	30						
	35						
	40						

NOTES:

Hand augered upper 5 feet due to utilities. Boring bailed to 13½ feet below ground surface after drilling. Ground water measured at 12 feet below ground surface 3 hours after completion of drilling. Boring backfilled with cement bentonite and patched with asphalt concrete.

* Number of blows required to drive Modified California sampler 12 inches using a 140 pound hammer falling 30 inches.

** Elevation obtained from site plan provided by University of California, Irvine.

Field Tech: DW
Prepared By: JF
Checked By: DC

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE; REFER TO PLOT PLAN FOR MORE ACCURATE LOCATION INFORMATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

B12SOIL_CRANDALL (NO DECIMAL) 110031_19-28.GPJ LAW_CRAN.GDT 3/10/11

Supplemental Exploration
Proposed Alumni Center
University of California, Irvine, California

MACTEC

LOG OF BORING
Project: 4953-11-0031.08 Figure: A-1.3

BORING B-22

DATE DRILLED: February 11, 2011
EQUIPMENT USED: Rotary Wash
HOLE DIAMETER (in.): 4-7/8
ELEVATION: 33 feet **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.	
	0						SP: 4-inch thick Asphalt Concrete, no Base Course FILL - POORLY GRADED SAND with Gravel
							CL: ALLUVIUM LEAN CLAY - dark brown to gray
	5		13.0	112	35		Becomes very stiff, moist, dark gray, trace sand, trace gravel
	10		15.9	105	16		SM: SILTY SAND - loose, moist, tan to light brown, fine to medium-grained (37% Passing No. 200 Sieve) Alternating with layers of Lean Clay
	15	34					SC: CLAYEY SAND - hard, gray to light brown (41% Passing No. 200 Sieve, LL=33, PI=14)
	20		25.8	96	32		CH: SANDY FAT CLAY - very stiff, moist, grayish brown, high plasticity (82% Passing No. 200 Sieve, LL=50, PI=24)
	25	54					Some gravel fragments BEDROCK - TOPANGA FORMATION SANDSTONE - very dense, wet, light brown to brownish gray, fine-grained, weak rock
	30				50/5"		END OF BORING AT 31 FEET
	35						
	40						

NOTES:

Hand augered upper 5 feet due to utilities. Ground water not measured. Boring backfilled with cement bentonite and patched with asphalt concrete.

* Number of blows required to drive Modified California sampler 12 inches using a 140 pound hammer falling 30 inches.

** Elevation obtained from site plan provided by University of California, Irvine.

Field Tech: DW
Prepared By: JF
Checked By: DC

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE; REFER TO PLOT PLAN FOR MORE ACCURATE LOCATION INFORMATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

B12SOIL_CRANDALL (NO DECIMAL) 110031_19-28.GPJ LAW_CRAN.GDT 3/10/11

Supplemental Exploration
Proposed Alumni Center
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LOG OF BORING
Project: 4953-11-0031.08 Figure: A-1.4

BORING B-23

DATE DRILLED: February 14, 2011
EQUIPMENT USED: Rotary Wash
HOLE DIAMETER (in.): 4-7/8
ELEVATION: 33 feet **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.	
	0						4-inch thick Asphalt Concrete, no Base Course
						CL	FILL - SANDY LEAN CLAY - moist, gray with brown, trace fine gravel
						CL	ALLUVIUM LEAN CLAY - moist, gray, medium plasticity
	5					SM	SILTY SAND - loose, moist, gray, fine-grained, nodules of clay intermixed
			17.7	105	16	SC	CLAYEY SAND - loose, moist, gray, fine-grained
							Some gravel between 7½ to 8½ feet
	10		19.5	112	32	CL	SANDY LEAN CLAY - very stiff, moist, grayish brown (51% Passing No. 200 Sieve)
	15	26				SC	CLAYEY SAND - medium dense, moist, brown, fine to medium-grained (46% Passing No. 200 Sieve, LL=30, PI=14)
	20		24.3	105	37		Thin layer of Lean Clay
							BEDROCK - TOPANGA FORMATION SANDSTONE - grayish brown, fine to medium-grained, weak rock
	25	90					Becomes wet, tan to light brown, fine-grained, trace coarse to fine gravel, trace FeO2
	30				50/5"		END OF BORING AT 30½ FEET.
	35						
	40						

NOTES:

Hand augered upper 3 feet due to utilities. Boring bailed to 25 feet below ground surface after drilling. Ground water measured at 24 feet below ground surface 30 minutes after completion of drilling. Boring backfilled with cement bentonite and patched with asphalt concrete.

* Number of blows required to drive Modified California sampler 12 inches using a 140 pound hammer falling 30 inches.

** Elevation obtained from site plan provided by University of California, Irvine.

Field Tech: DW
Prepared By: JF
Checked By: DC

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE; REFER TO PLOT PLAN FOR MORE ACCURATE LOCATION INFORMATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

B12SOIL_CRANDALL (NO DECIMAL) 110031_19-28.GPJ LAW_CRAN.GDT 3/10/11

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LOG OF BORING
Project: 4953-11-0031.08 Figure: A-1.5

BORING B-24

DATE DRILLED: February 11, 2011
EQUIPMENT USED: Rotary Wash
HOLE DIAMETER (in.): 4-7/8
ELEVATION: 33 feet **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.		
	0						ML/CL	4-inch thick Asphalt Concrete, no Base Course FILL - SANDY SILT / SANDY CLAY - moist, light to dark brown and gray, heavy organic odor
	5							
								3-inch cobble
	10				30			Sample not recovered, rock in sampler bit
							SC	ALLUVIUM CLAYEY SAND - medium dense, moist, light brown, fine-grained
	15	26						(46% Passing No. 200 Sieve, LL=27, PI=11)
	20		15.0	113	50		SM	SILTY SAND - dense, moist, light brown, fine-grained, trace clay (44% Passing No. 200 Sieve, NP)
	25	11					SC	CLAYEY SAND - medium dense, moist, light brown, fine-grained (43% Passing No. 200 Sieve, LL=27, PI=9)
								Thin layer of Sandy Silt
	30		16.2	108	50/4"			BEDROCK - TOPANGA FORMATION SANDSTONE - light brown, very little cementation
	35	30						CLAYEY SILTSTONE - very stiff, moist, olive gray, highly weathered
	40							

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(CONTINUED ON FOLLOWING FIGURE)

Field Tech: AR
Prepared By: JF
Checked By: DC

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Proposed Alumni Center
University of California, Irvine, California

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LOG OF BORING
Project: 4953-11-0031.08 Figure: A-1.6a

BORING B-24 (Continued)

DATE DRILLED: February 11, 2011
EQUIPMENT USED: Rotary Wash
HOLE DIAMETER (in.): 4-7/8
ELEVATION: 33 feet **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.
	45				50/6"	
	50					
	55					
	60					
	65					
	70					
	75					
	80					

END OF BORING AT 41 FEET

NOTES:

Hand augered upper 8 feet due to utilities. Ground water not measured. Boring backfilled with cement bentonite and patched with asphalt concrete.

* Number of blows required to drive Modified California sampler 12 inches using a 140 pound hammer falling 30 inches.

** Elevation obtained from site plan provided by University of California, Irvine.

Field Tech: AR
Prepared By: JF
Checked By: DC

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B12SOIL_CRANDALL (NO DECIMAL) 110031_19-28.GPJ LAW_CRAN.GDT 3/10/11

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LOG OF BORING
Project: 4953-11-0031.08 Figure: A-1.6b

BORING B-25

DATE DRILLED: February 15, 2011
EQUIPMENT USED: Rotary Wash
HOLE DIAMETER (in.): 4-7/8
ELEVATION: 32 feet **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.		
							CL	4-inch thick Asphalt Concrete, no Base Course FILL - SANDY LEAN CLAY - moist, dark brown to dark gray
							CL/ CH	ALLUVIUM CLAY - stiff, moist, gray, some sand, medium to high plasticity
	5		17.3	104	17			
	10		9.6	120	49		SP-SM	POORLY GRADED SAND with Silt - dense, moist, gray, fine-grained
	15	23					SC	CLAYEY SAND - medium dense, moist, brown (45% Passing No. 200 Sieve, LL=28, PI=10)
	20		8.7	114	46		SW-SC	WELL GRADED SAND with Clay - medium dense, slightly moist, brown, fine-grained, trace fine gravel, friable (11% Passing No. 200 Sieve)
	25	2					SC	CLAYEY SAND - very loose, moist, brown, fine-grained (41% Passing No. 200 Sieve, LL=32, PI=14)
	30		19.7	111	51			BEDROCK - TOPANGA FORMATION SANDSTONE - dense, light brown to tan, fine-grained, trace coarse sand, trace fine gravel (subrounded), weak rock
	35	35						Interbedded with Siltstone, olive brown to olive gray, laminated, some iron oxide stain END OF BORING AT 36½ FEET
	40							NOTES:

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE; REFER TO PLOT PLAN FOR MORE ACCURATE LOCATION INFORMATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DW
Prepared By: JF
Checked By: DC

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LOG OF BORING
Project: 4953-11-0031.08 Figure: A-1.7a

BORING B-25 (Continued)

DATE DRILLED: February 15, 2011
EQUIPMENT USED: Rotary Wash
HOLE DIAMETER (in.): 4-7/8
ELEVATION: 32 feet **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.
	45					
	50					
	55					
	60					
	65					
	70					
	75					
	80					

Hand augered upper 3 feet due to utilities. Ground water not measured. Boring backfilled with cement bentonite and patched with asphalt concrete.

* Number of blows required to drive Modified California sampler 12 inches using a 140 pound hammer falling 30 inches.

** Elevation obtained from site plan provided by University of California, Irvine.

Field Tech: DW
Prepared By: JF
Checked By: DC

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LOG OF BORING
Project: 4953-11-0031.08 Figure: A-1.7b

BORING B-26

DATE DRILLED: February 15, 2011
EQUIPMENT USED: Rotary Wash
HOLE DIAMETER (in.): 4-7/8
ELEVATION: 34 feet **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.	
	0						CL — Grass Surface FILL - SANDY LEAN CLAY - moist, dark brown, trace silt
	5						SM — ALLUVIUM SILTY SAND - moist, light brown, fine to medium-grained, trace fine gravel
			16.6	114	24		CL — SANDY LEAN CLAY - very stiff, moist, brown, trace fine gravel Becomes gray, medium to high plasticity
	10		13.2	123	82		BEDROCK - TOPANGA FORMATION SANDSTONE - very dense, moist, fine to medium-grained, some silt, slightly weathered, some iron oxide staining
	15	36					Interbedded with Claystone, moist, grayish brown
	20		8.5	103	50/5"		Becomes light brown, fine-grained, micaceous
	25						END OF BORING AT 21 FEET
	30						
	35						
	40						

NOTES:

Hand augered upper 5 feet due to utilities. Ground water not measured. Boring backfilled with cement bentonite and patched with asphalt concrete.

* Number of blows required to drive Modified California sampler 12 inches using a 140 pound hammer falling 30 inches.

** Elevation obtained from site plan provided by University of California, Irvine.

Field Tech: DW
Prepared By: JF
Checked By: DC

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LOG OF BORING
Project: 4953-11-0031.08 Figure: A-1.8

BORING B-27

DATE DRILLED: February 11, 2011
EQUIPMENT USED: Rotary Wash
HOLE DIAMETER (in.): 4-7/8
ELEVATION: 34 feet **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.	
	0						ML — Grass Surface FILL - SANDY SILT with Clay - moist, dark to light gray
							CL-ML — FILL - SILTY CLAY - moist, light to medium brown
	5		20.2	107	12		Becomes very moist
	10	19					CL — ALLUVIUM SANDY LEAN CLAY - very stiff, moist, light brown to gray, slightly porous (51% Passing No. 200 Sieve, LL=34, PI=16) Alternating layers of Clayey Sand
	15		14.8	117	48		
	20	17					Clay seams
	25		30.8	95	93/9"		6-inch layer of coarse gravel BEDROCK - TOPANGA FORMATION SANDSTONE - very dense, moist, light brownish gray, fine-grained, very little cementation (6% Passing No. 200 Sieve, NP)
	30	50/6"					Fine gravel lens Less weathered, more cementation
	35		26.7	97	72		SILTSTONE - olive gray, thinly bedded
	40						

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(CONTINUED ON FOLLOWING FIGURE)

Field Tech: AR
Prepared By: JF
Checked By: DC

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LOG OF BORING
Project: 4953-11-0031.08 Figure: A-1.9a

BORING B-27 (Continued)

DATE DRILLED: February 11, 2011
EQUIPMENT USED: Rotary Wash
HOLE DIAMETER (in.): 4-7/8
ELEVATION: 34 feet **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.
	45	90				
	50					
	55					
	60					
	65					
	70					
	75					
	80					

END OF BORING AT 41½ FEET.

NOTES:

Hand augered upper 6 feet due to utilities. Boring bailed to 26 feet below ground surface after drilling. Ground water measured at 25 feet below ground surface 5 hours after completion of drilling. Boring backfilled with cement bentonite and patched with asphalt concrete.

* Number of blows required to drive Modified California sampler 12 inches using a 140 pound hammer falling 30 inches.

** Elevation obtained from site plan provided by University of California, Irvine.

Field Tech: AR
Prepared By: JF
Checked By: DC

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LOG OF BORING
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BORING B-28

DATE DRILLED: February 11, 2011
EQUIPMENT USED: Rotary Wash
HOLE DIAMETER (in.): 4-7/8
ELEVATION: 34 feet **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.		
	0						CL-ML	FILL - SILTY CLAY - moist, dark gray to light brown
	5		25.0	96	8		ML	FILL - SANDY SILT - very moist, light brown, some clay
	10	15					CL	ALLUVIUM SANDY LEAN CLAY - stiff, moist, grayish brown (54% Passing No. 200 Sieve, LL=36, PI=18)
	15		13.1	121	87		SC	CLAYEY SAND - very dense, moist, grayish brown (45% Passing No. 200 Sieve, LL=33, PI=13)
	20	31					SM	SILTY SAND - dense, moist, light brown, fine to medium-grained (34% Passing No. 200 Sieve) Some gravel
	25		21.5	102	83/11"		SP	BEDROCK - TOPANGA FORMATION SANDSTONE - very dense, moist, light brownish gray, fine-grained, very little cementation 6-inch of gravel layer
	30	50/5"						Sample not recovered Increased gravel content
	35				90/11"			SILTY SANDSTONE - brownish gray, fine-grained Becomes olive gray, thinly bedded
	40							

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(CONTINUED ON FOLLOWING FIGURE)

Field Tech: AR
Prepared By: JF
Checked By: DC

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LOG OF BORING
Project: 4953-11-0031.08 Figure: A-1.10a

BORING B-28 (Continued)

DATE DRILLED: February 11, 2011
EQUIPMENT USED: Rotary Wash
HOLE DIAMETER (in.): 4-7/8
ELEVATION: 34 feet **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.
	40					
	45					
	50					
	55					
	60					
	65					
	70					
	75					
	80					

END OF BORING AT 41½ FEET

NOTES:

Hand augered upper 5 feet due to utilities. Ground water not measured. Boring backfilled with cement bentonite and patched with asphalt concrete.

* Number of blows required to drive Modified California sampler 12 inches using a 140 pound hammer falling 30 inches.

** Elevation obtained from site plan provided by University of California, Irvine.

Field Tech: AR
Prepared By: JF
Checked By: DC

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LOG OF BORING
Project: 4953-11-0031.08 Figure: A-1.10b

MAJOR DIVISIONS			GROUP SYMBOLS		TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of material is LARGER than No. 200 sieve size)	GRAVELS (More than 50% of coarse fraction is LARGER than the No. 4 sieve size)	CLEAN GRAVELS (Little or no fines)		GW	Well graded gravels, gravel - sand mixtures, little or no fines.
				GP	Poorly graded gravels or grave - sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amount of fines)		GM	Silty gravels, gravel - sand - silt mixtures.
				GC	Clayey gravels, gravel - sand - clay mixtures.
	SANDS (More than 50% of coarse fraction is SMALLER than the No. 4 Sieve Size)	CLEAN SANDS (Little or no fines)		SW	Well graded sands, gravelly sands, little or no fines.
				SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amount of fines)		SM	Silty sands, sand - silt mixtures
				SC	Clayey sands, sand - clay mixtures.
FINE GRAINED SOILS (More than 50% of material is SMALLER than No. 200 sieve size)	SILTS AND CLAYS (Liquid limit LESS than 50)			ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts and with slight plasticity.
				CL	Inorganic lays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
				OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS (Liquid limit GREATER than 50)			MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS				PT	Peat and other highly organic soils.

Undisturbed Sample		Auger Cuttings	
Standard Penetration Test		Bulk Sample	
Rock Core		Modified California Sampler	
Dilatometer		Pressure Meter	
Packer		No Recovery	
Water Table at time of drilling		Water Table after drilling	

Correlation of Penetration Resistance with Relative Density and Consistency

SAND & GRAVEL		SILT & CLAY	
No. of Blows	Relative Density	No. of Blows	Consistency
0 - 4	Very Loose	0 - 1	Very Soft
5 - 10	Loose	2 - 4	Soft
11 - 30	Medium Dense	5 - 8	Medium Stiff
31 - 50	Dense	9 - 15	Stiff
Over 50	Very Dense	16 - 30	Very Stiff
		Over 30	Hard

BOUNDARY CLASSIFICATIONS: Soils possessing characteristics of two groups are designated by combinations of group symbols.

SILT OR CLAY	SAND			GRAVEL		Cobbles	Boulders
	Fine	Medium	Coarse	Fine	Coarse		

No.200 No.40 No.10 No.4 3/4" 3" 12"

U.S. STANDARD SIEVE SIZE

Reference: The Unified Soil Classification System, Corps of Engineers, U.S. Army Technical Memorandum No. 3-357, Vol. 1, March, 1953 (Revised April, 1960)

KEY TO SYMBOLS AND DESCRIPTIONS

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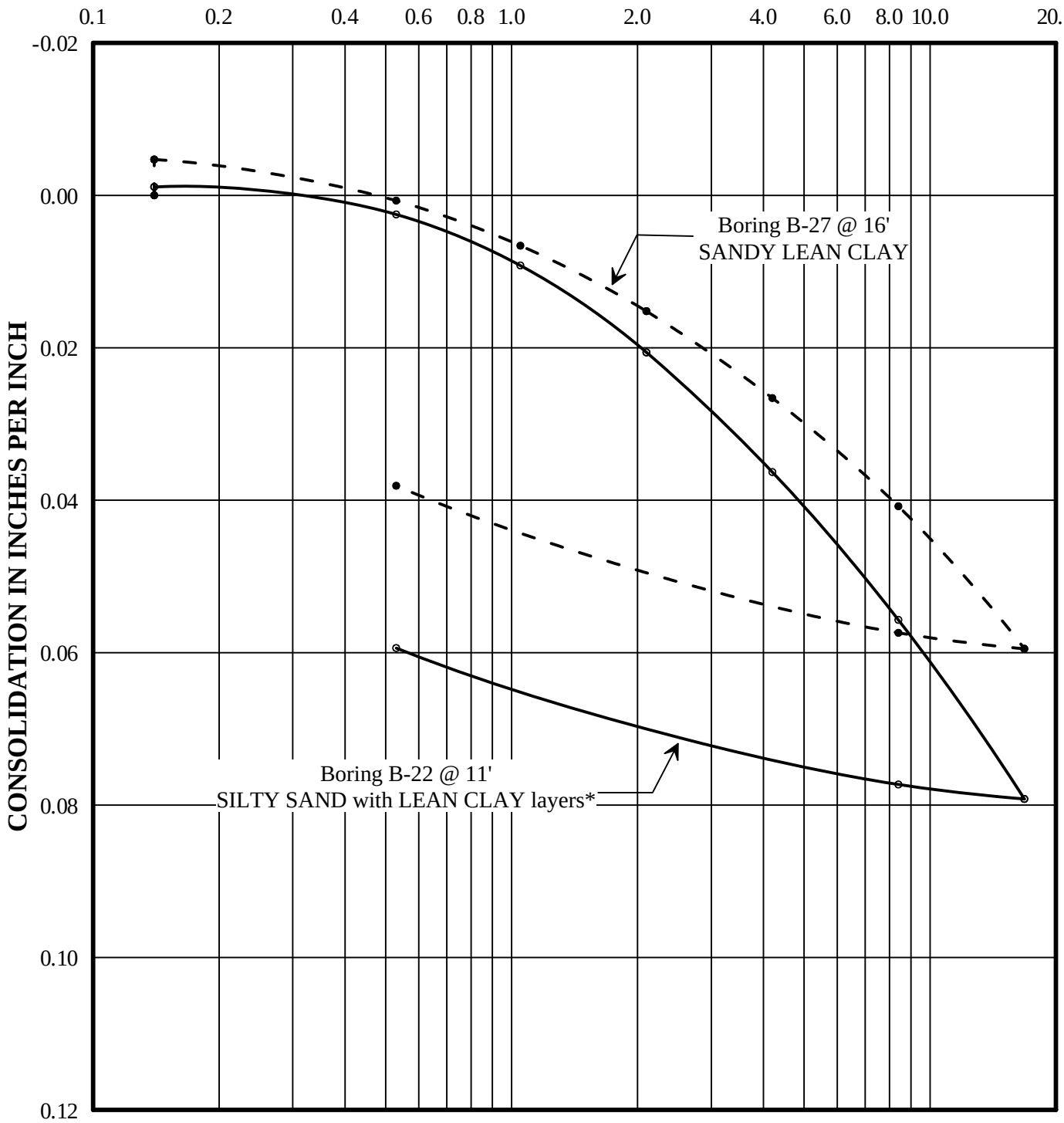
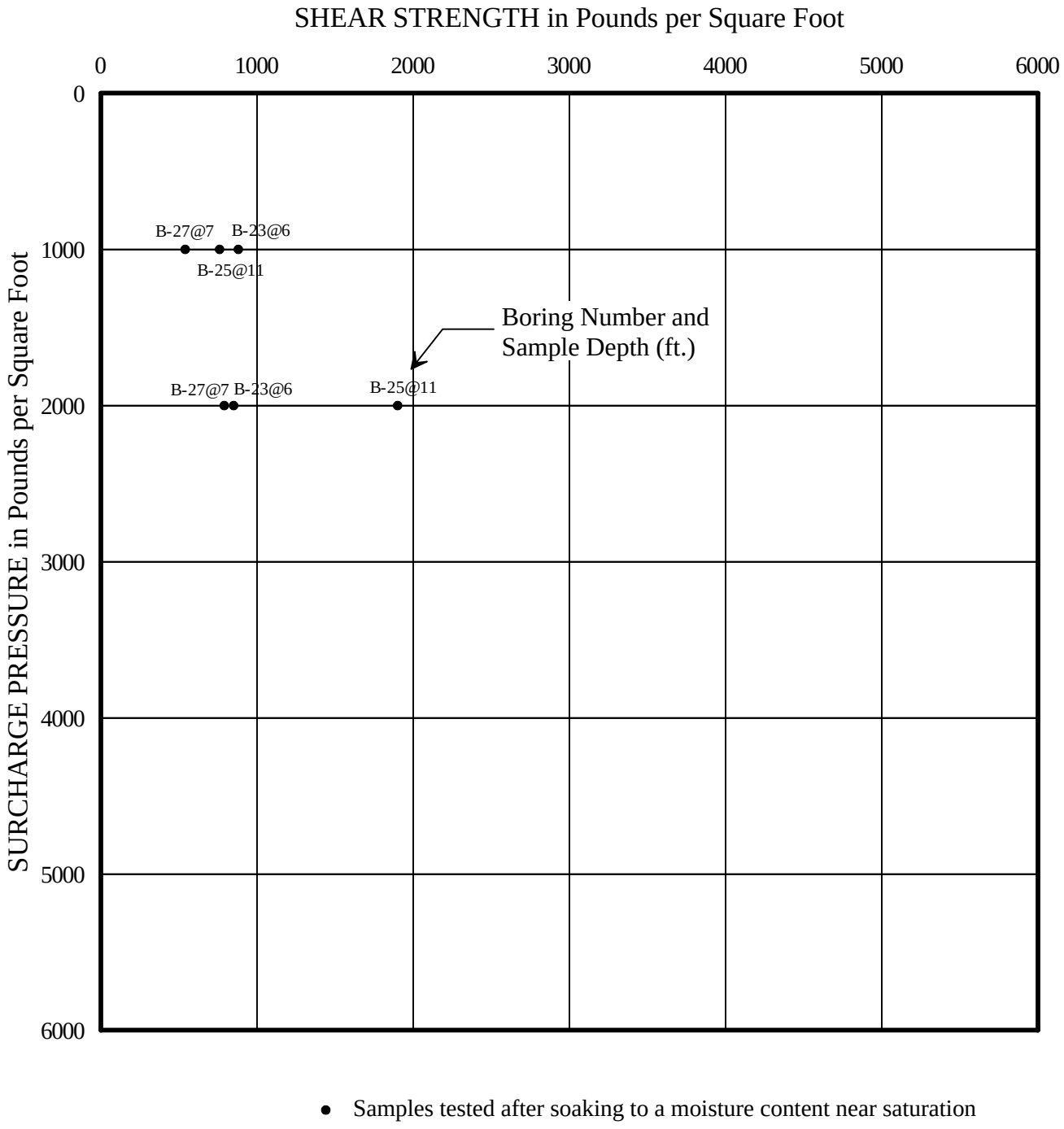
Figure A-2



Note: Water added to sample from Boring 22 at 11' before consolidation under a seating load of 0.14 kips per square foot.
Water added to sample from Boring 27 at 16' before consolidation under a seating load of 0.14 kips per square foot.
*Test performed on clay material.

Prepared/Date: JF 3/10/11
Checked/Date: DC 3/10/11

Supplemental Exploration Proposed Alumni Center University of California, Irvine, California	MACTEC	CONSOLIDATION TEST DATA Project 4953-11-0031.08 Figure A-4



- Samples tested after soaking to a moisture content near saturation

Prepared/Date: JF 3/2/11
Checked/Date: DC 3/10/11

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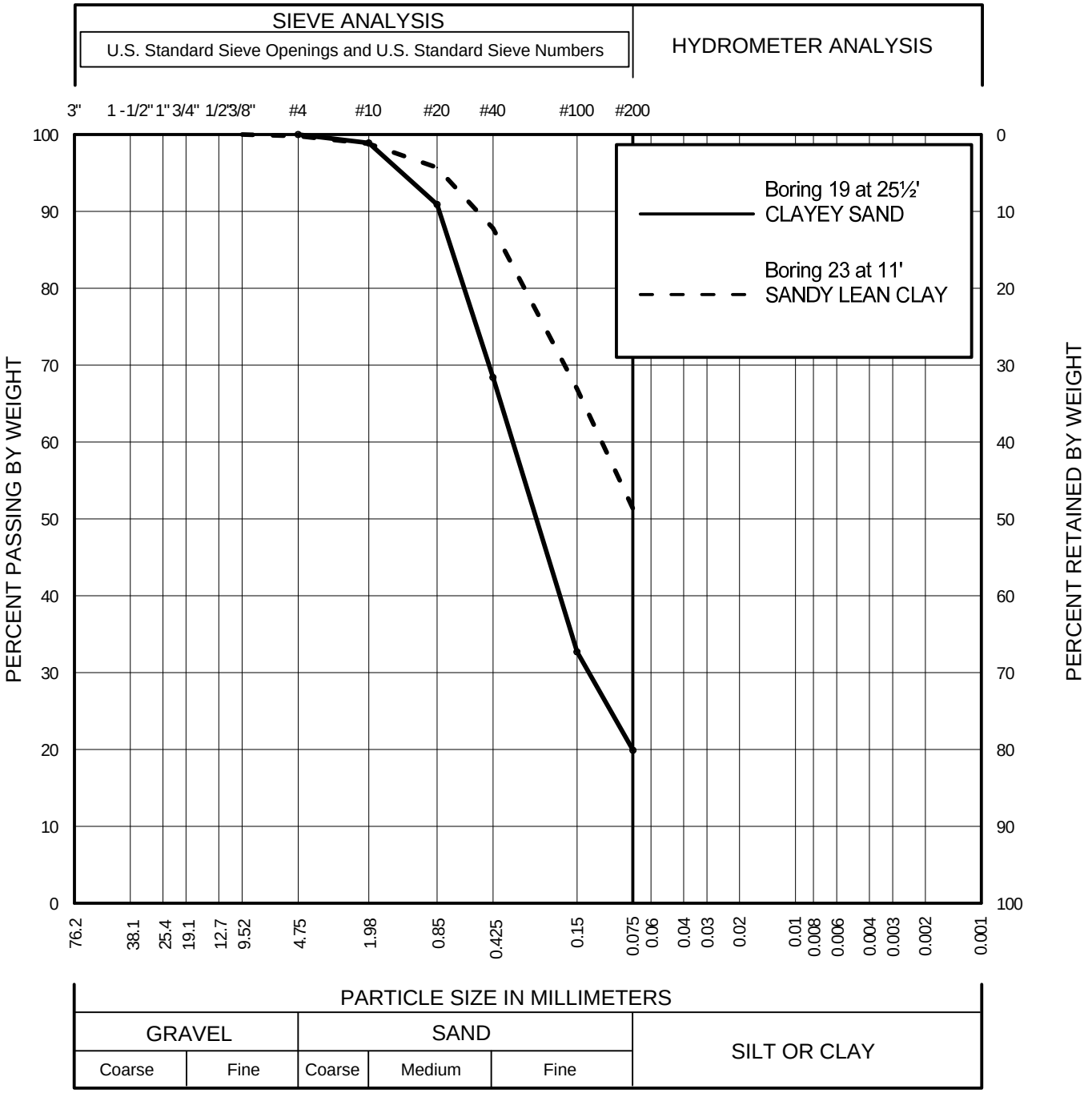
DIRECT SHEAR TEST DATA
Project No. 4953-11-0031.08
Figure A-3

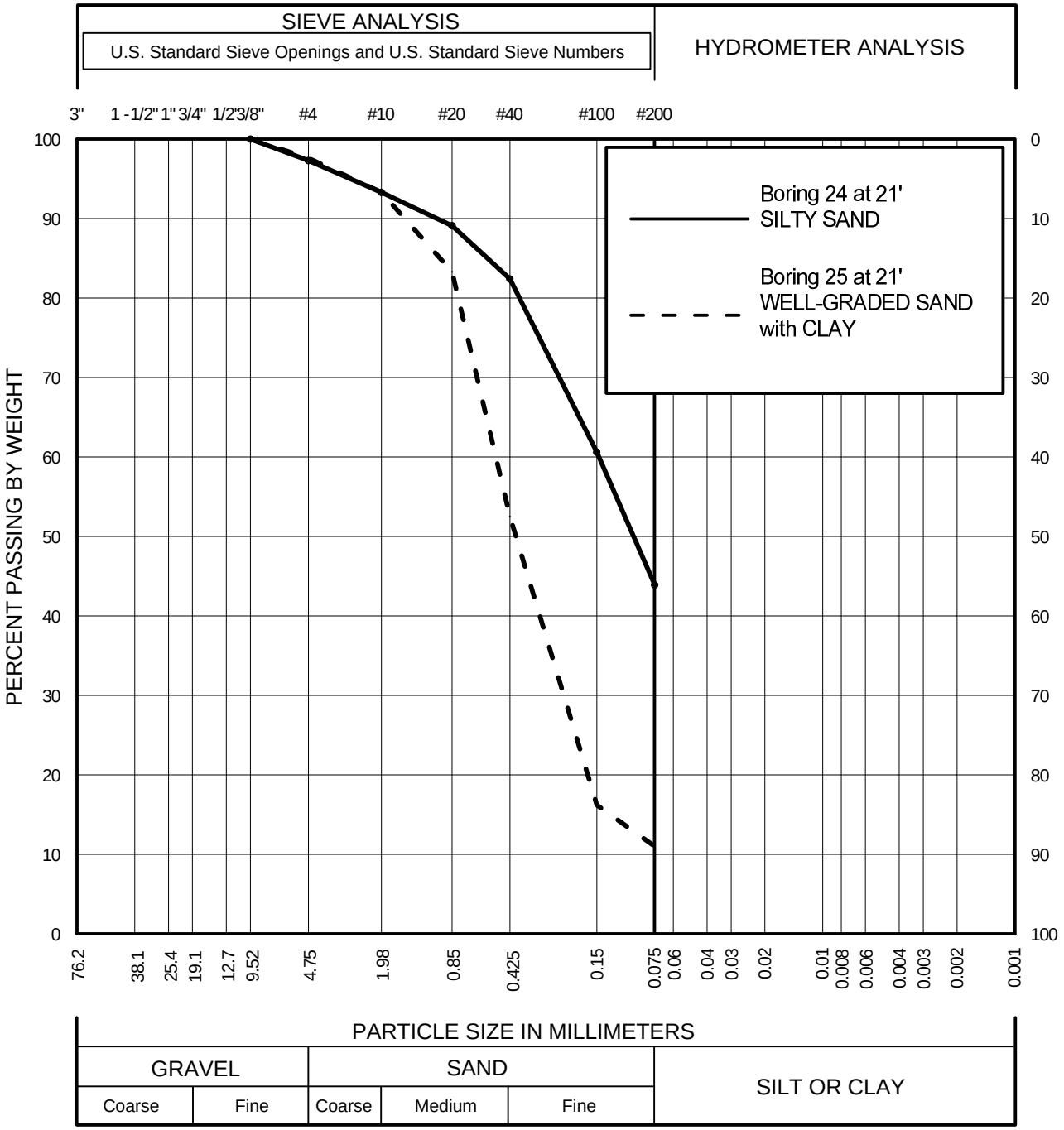


Prepared/Date: JF 3/2/11
Checked/Date: DC 3/10/11

Supplemental Exploration
Proposed Alumni Center
University of California, Irvine, California

MACTEC

PARTICLE SIZE DISTRIBUTION
Project No. 4953-11-0031.08
Figure A-5.1

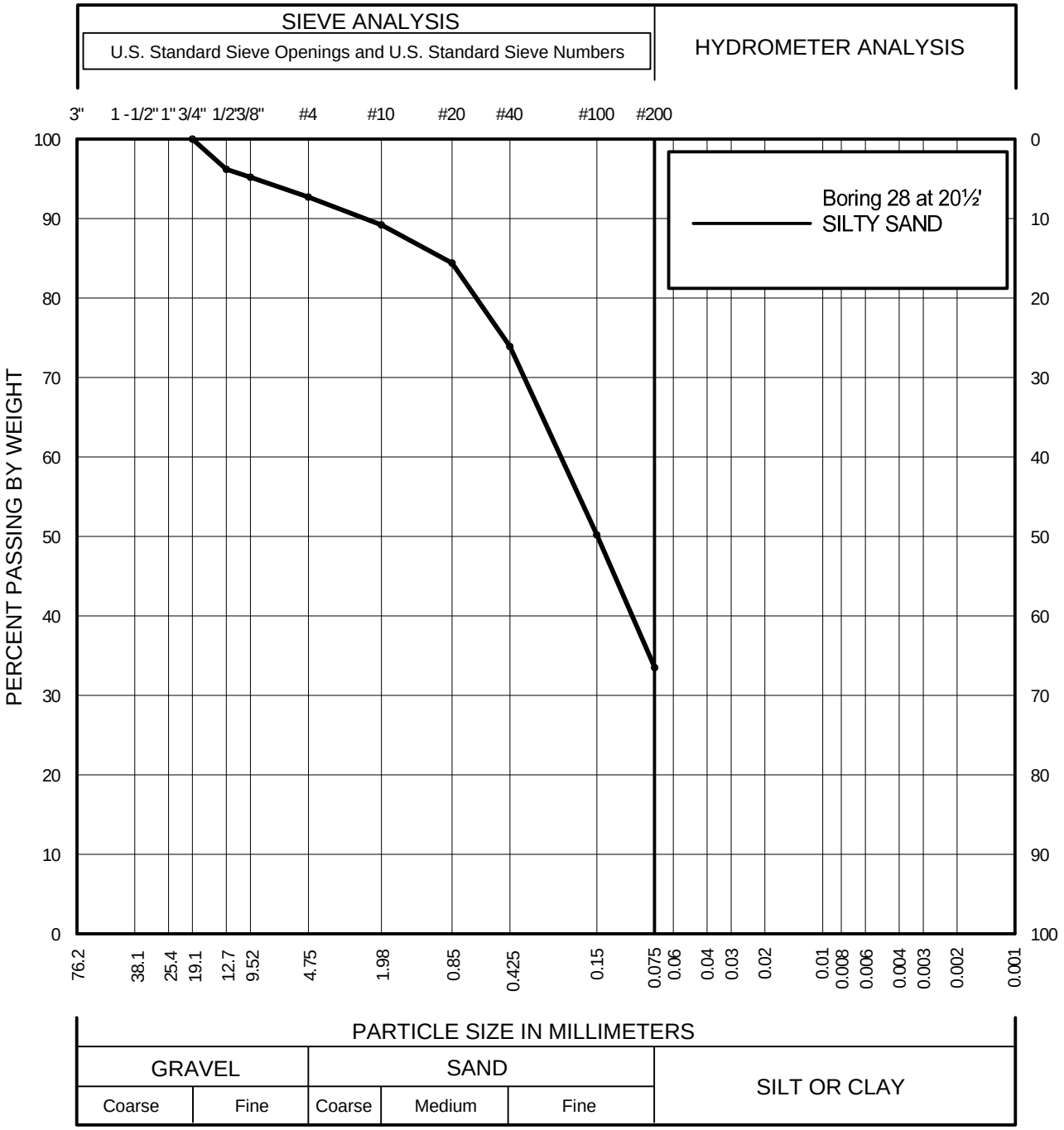


Prepared/Date: JF 3/2/11
Checked/Date: DC 3/10/11

Supplemental Exploration
Proposed Alumni Center
University of California, Irvine, California

MACTEC

PARTICLE SIZE DISTRIBUTION
Project No. 4953-11-0031.08
Figure A-5.2



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Checked/Date: DC 3/10/11

Supplemental Exploration
Proposed Alumni Center
University of California, Irvine, California

MACTEC

PARTICLE SIZE DISTRIBUTION
Project No. 4953-11-0031.08
Figure A-5.3

Table 1 - Laboratory Tests on Soil Sample(s)

MACTEC
UCI Alumni Center
Your #4953-11-0031, SA #11-0207LAB
25-Feb-11

Sample ID			B22 @ 26' Clay / Siltstone	B24 @ 1-8' CL / ML
Resistivity		**Units**		
as-received		ohm-cm	4,400,000	4,400,000
minimum		ohm-cm	791	884
pH			7.7	7.8
Electrical Conductivity		mS/cm	0.31	0.30
Chemical Analyses				
Cations				
calcium	Ca^{2+}	mg/kg	37	48
magnesium	Mg^{2+}	mg/kg	17	19
sodium	Na^{1+}	mg/kg	308	317
potassium	K^{1+}	mg/kg	16	8.6
Anions				
carbonate	CO_3^{2-}	mg/kg	24	33
bicarbonate	HCO_3^{1-}	mg/kg	217	332
fluoride	F^{1-}	mg/kg	7.2	10
chloride	Cl^{1-}	mg/kg	146	71
sulfate	SO_4^{2-}	mg/kg	184	132
phosphate	PO_4^{3-}	mg/kg	ND	2.3
Other Tests				
ammonium	NH_4^{1+}	mg/kg	ND	ND
nitrate	NO_3^{1-}	mg/kg	2.8	7.1
sulfide	S^{2-}	qual	na	na
Redox		mV	na	na

Minimum resistivity per CTM 643, Chlorides per CTM 422, Sulfates per CTM 417

Electrical conductivity in millisiemens/cm and chemical analysis were made on a 1:5 soil-to-water extract.
mg/kg = milligrams per kilogram (parts per million) of dry soil.
Redox = oxidation-reduction potential in millivolts
ND = not detected
na = not analyzed

APPENDIX D

GREENHOUSE GAS ASSESSMENT

Greenhouse Gas Assessment For:
UCI Alumni Center

Prepared For:
University of California, Irvine
Campus and Environmental Planning
750 University Tower
Irvine, CA 92697-2325

Submitted By:
Mestre Greve Associates
Division of Landrum and Brown
Fred Greve P.E.
Matthew B. Jones P.E.
27812 El Lazo Road
Laguna Niguel, CA 92677
949•349•0671

June 27, 2011
Report #520701GG4

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1.0 Background Information

1.1 Project Description

The proposed UCI Alumni Center would construct a 19,000 to 29,000 gross square foot (gsf) building on the UCI campus on approximately 0.25-acre at the southeast corner of Mesa Road and Pereira Drive. Exhibit 1presents a vicinity map showing the project location and Exhibit 2 shows an aerial photograph of the project site.

The proposed Alumni Center is anticipated to include a 250-seat capacity conference space, staff offices, meeting rooms, a workroom, a coffee/tea shop, and various support areas in approximately 11,400 to 18,000 assignable square feet (asf). The building would also include an attached approximately 3,500 square foot exterior patio approximately at ground level. This analysis examines the potential air quality impacts from the largest building space considered (29,000 gsf/18,000 asf) including the exterior patio.

Upon completion, the UCI Alumni Association which is currently housed in the Phineas Banning Alumni House (4,027 gsf/2,550 asf) located adjacent to Pereira Drive on campus, would be relocated to the proposed building. The vacated space in the Phineas Banning Alumni House will revert to the campus for reassignment.

This report analyzes the potential greenhouse gas climate change impacts associated with this project. Greenhouse Gases and Climate Change

1.1.1 Impact of Climate Change

The Earth's climate changes over periods of time that range from decades to millions of years. Climate change is due to many different natural factors. These factors include but are not limited to changes in the Earth's orbit, volcanic eruptions, ocean variability, and solar output variations. The interplay of these natural factors has caused historical global temperature fluctuations ranging from ice ages to long periods of global warming. However, since the Industrial Revolution in the late 18th century, human activities have become a major influence in the rate of climate change. The Intergovernmental Panel on Climate Change (IPCC) concludes that increasing greenhouse gas concentrations in the atmosphere resulting from human activities, such as burning fossil fuels and deforestation, caused most of the observed temperature increases in the Earth's near-surface air and oceans since the middle of the 20th century.

According to the National Oceanic and Atmospheric Administration (NOAA) and National Aeronautics and Space Administration (NASA) data, the average surface temperature of the Earth has increased by about 1.2 to 1.4 ºF since 1900. The warmest global average temperatures in human record have all occurred within the past 15 years, with the warmest two years being 1998 and 2005. [EPA, 2007, epa.gov/climatechange/basicinfo.html].

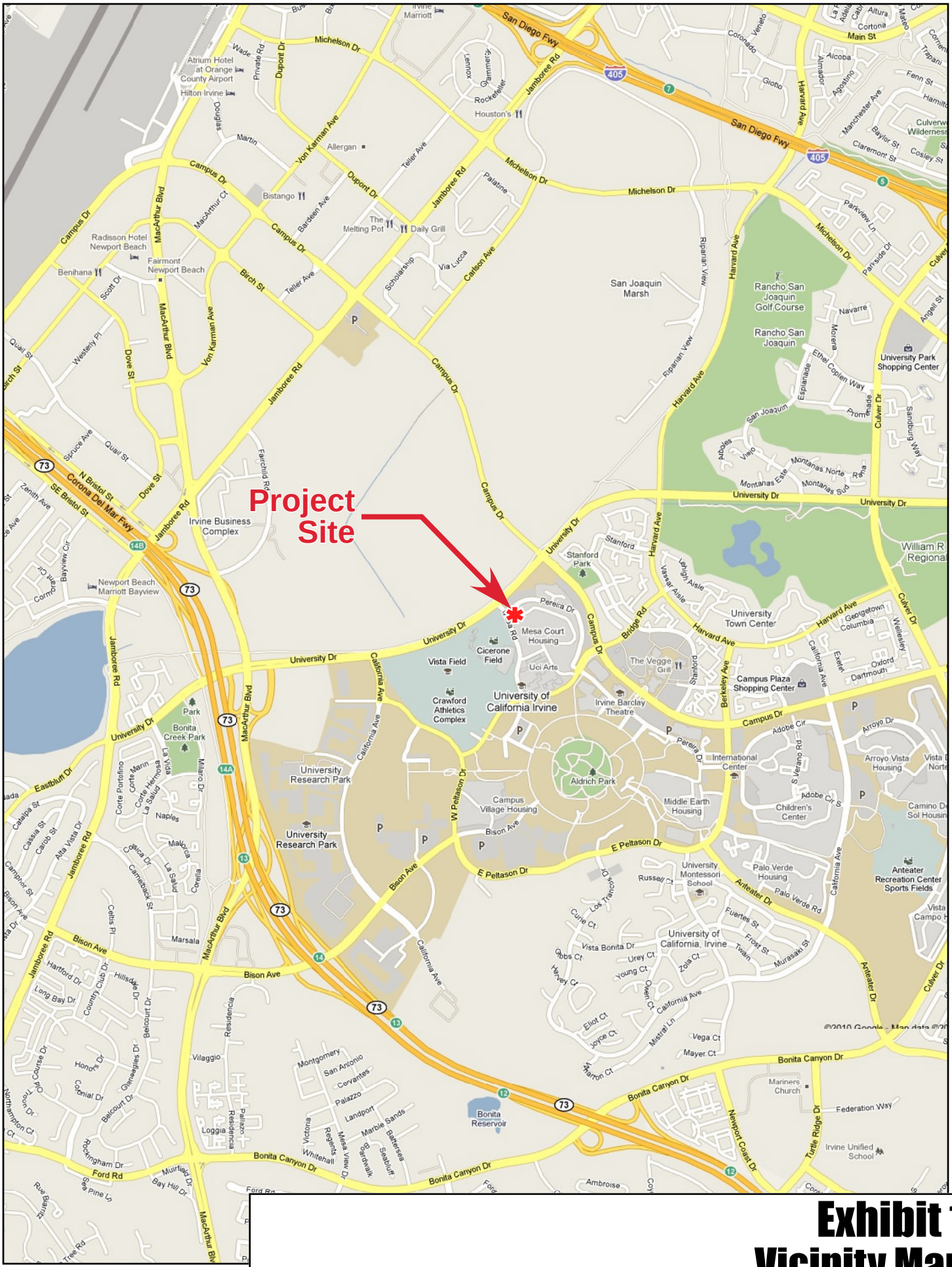

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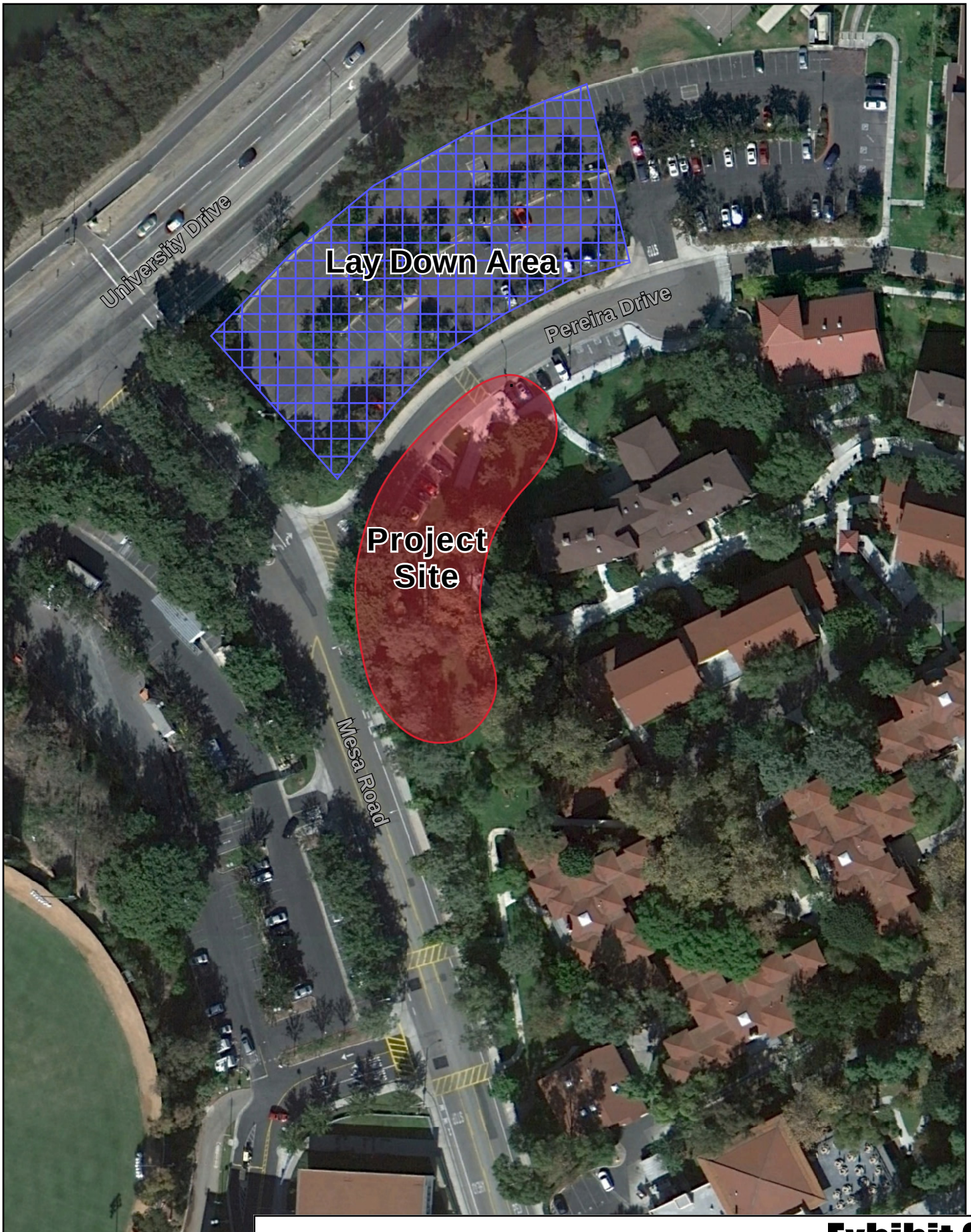
Exhibit 1
Vicinity Map



N 0' 30' 60'

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Exhibit 2
Project Site

The greenhouse effect is the process by which absorption and emission of infrared radiation by gases in the atmosphere warm the Earth's lower atmosphere and surface. This process of heating is often referred to as 'global warming,' although the National Academy of Sciences prefers the terms 'climate change' as an umbrella phrase which includes global warming as well as other environmental changes, in addition to the increasing temperatures. Some of these effects include changes to rainfall, wind, and current weather patterns, as well as snow and ice cover, and sea level.

Depending on which GHG emissions scenario is used, climate models predict that the Earth's average temperature could rise anywhere between 2.5 to 10.4 ºF from 1990 to the end of this century. The degree of change is influenced by the assumed amount of GHG emissions, and how quickly atmospheric GHG levels are stabilized. At this point, however, the climate change models are not capable of predicting local impacts, but rather, can only predict global trends. [EPA, 2007, epa.gov/climatechange/basicinfo.html].

Global GHG emissions are measured in million metric tons of carbon dioxide equivalent ("MMT CO_2EQ") units. A metric ton is approximately 2,205 lbs. Some GHGs emitted into the atmosphere are naturally occurring, while others are caused solely by human activities. The major naturally occurring, or biogenic, greenhouse gases (GHG) include water vapor, carbon dioxide, methane, and ozone. Human activities since the Industrial Revolution have increased the amount of these natural GHGs and introduced chloroflurocarbons (CFCs), nitrous oxide, and other anthropogenic GHGs in the atmosphere. Below are descriptions of the general human activity sources of several common GHGs:

- **Carbon dioxide (CO_2)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), agriculture, irrigation, and deforestation, as well as the manufacturing of cement.

- **Methane (CH_4)** is emitted through the production and transportation of coal, natural gas, and oil, as well as from livestock. Other agricultural activities influence methane emissions as well as the decay of waste in landfills.

- **Nitrous oxide (N_2O)** is released most often during the burning of fuel at high temperatures. This greenhouse gas is caused mostly by motor vehicles, which also include non-road vehicles, such as those used for agriculture.

- **Fluorinated Gases** are emitted primarily from industrial sources, which often include hydrofluorocarbons (HRC), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6). Though they are often released in smaller quantities, they are referred to as High Global Warming Potential Gases because of their ability to cause global warming. Fluorinated gases are often used as substitutes for ozone depleting substances.

These gases have different potentials for trapping heat in the atmosphere, called global warming potential ("GWP"). For example, one pound of methane has 21 times more heat capturing potential than one pound of carbon dioxide. When dealing with an array of emissions, the gases are converted to carbon dioxide equivalents for comparison purposes. The GWPs for common greenhouse gases are shown in Table 1.

Table 1
Global Warming Potentials (GWP)

Gas	Global Warming Potential
Carbon Dioxide (CO_2)	1
Methane (CH_4)	21
Nitrous Oxide (N_2O)	310
HFC-23	11,700
HFC-134a	1,300
HFC-152a	140
PFC: Tetrafluoromethane (CF_4)	6,500
PFC: Hexafluoroethane (C_2F_6)	9,200
Sulfur Hexafluoride (SF_6)	23,900

Source: EPA 2006. Non CO_2 Gases Economic Analysis and inventory. (http://www.epa.gov/nonco2/econ-inv/table.html), December 2006

1.1.2 Impact of Climate Change on California and Human Health

The long term environmental impacts of global warming may include sea level rise that could cause devastating erosion and flooding of coastal cities and villages, as well as more intense hurricanes and typhoons worldwide. In the United States, Chicago is projected to experience 25 percent more frequent heat waves and Los Angeles a four-to-eight-fold increase in heat wave days by the end of the century (IPCC, 2007: Climate Change 2007: Impacts, Adaptation and Vulnerability, Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, Cambridge).

Locally, global warming could cause changing weather patterns with increased storm and drought severity in California. Changes to local and regional ecosystems including the potential loss of species, and a significant reduction in winter snow pack (e.g., estimates include a 30 to 90% reduction in snow pack in the Sierra Nevada mountain range). Current data suggest that in the next 25 years, in every season of the year, California could experience unprecedented heat, longer and more extreme heat waves, greater intensity and frequency of heat waves, and longer dry periods. The California Climate Change Center (2006) predicted that California could witness the following events:

- Temperature rises between 3 and 10.5˚ F
- 6 to 20 inches or more increase in sea level
- 2 to 4 times as many heat-wave days in major urban centers
- 2 to 6 times as many heat-related deaths in major urban centers
- 1 to 1.5 times more critically dry years
- 10 to 55% increase in the risk of wildfires

An increase in the frequency of extreme events may result in more event-related deaths, injuries, infectious diseases, and stress-related disorders. Particular segments of the population such as those with heart problems, asthma, the elderly, the very young and the homeless can be especially vulnerable to extreme heat. Also, climate change may increase the risk of some

infectious diseases, particularly those diseases that appear in warm areas and are spread by mosquitoes and other insects. These "vector-borne" diseases include malaria, dengue fever, yellow fever, and encephalitis. Also, algal blooms could occur more frequently as temperatures warm — particularly in areas with polluted waters — in which case diseases (such as cholera) that tend to accompany algal blooms could become more frequent.

1.1.3 Adaptation Impact

Adaptation refers to potential climate change impacts on the project. Global warming is already having a profound impact on water resources. Climate change already altered the weather patterns and water supply in California leading to increased water shortages (i.e., a dwindling snowpack, bigger flood flows, rising sea levels, longer and harsher droughts). Water supplies are also at risk from rising sea levels. Risks may include degrade California's estuaries, wetlands, and groundwater aquifers which would threaten the quality and reliability of the major California fresh water supply (Climate Change Adaptation Strategies for California's Water, State of California Department of Water Resources, October 2008).

Higher temperatures will also likely increase electricity demand due to higher air conditioning use. Even if the population remained unchanged, toward the end of the century annual electricity demand could increase by as much as 20 percent if temperatures rise into the higher warming range. (Implementing aggressive efficiency measures could lower this estimate).

Higher temperatures may require that the project consume more electricity for cooling. Additionally, more water may be needed for the landscaping. However, sea level rise won't impact the project because it's so far and high relative to the ocean.

Adaptation includes the responses to the changing climate and policies to minimize the predicted impacts (e.g., building better coastal defenses to sea level rise). Adaptation is not included in this report. It should be note that adaptation is not mitigation. Mitigation includes intervention or policies to reduce GHG emissions or to enhance the sinks of GHGs.

1.2 Emission Inventories

To put perspective on the emissions generated by a project and to better understand the sources of GHGs, it is important to look at emission inventories. The United Nations has taken the lead in quantifying GHG emissions and compiling the literature on climate change. The United Nations estimated for CO_2 equivalents for the world and for the top ten CO_2 producing countries are presented in Table 2.

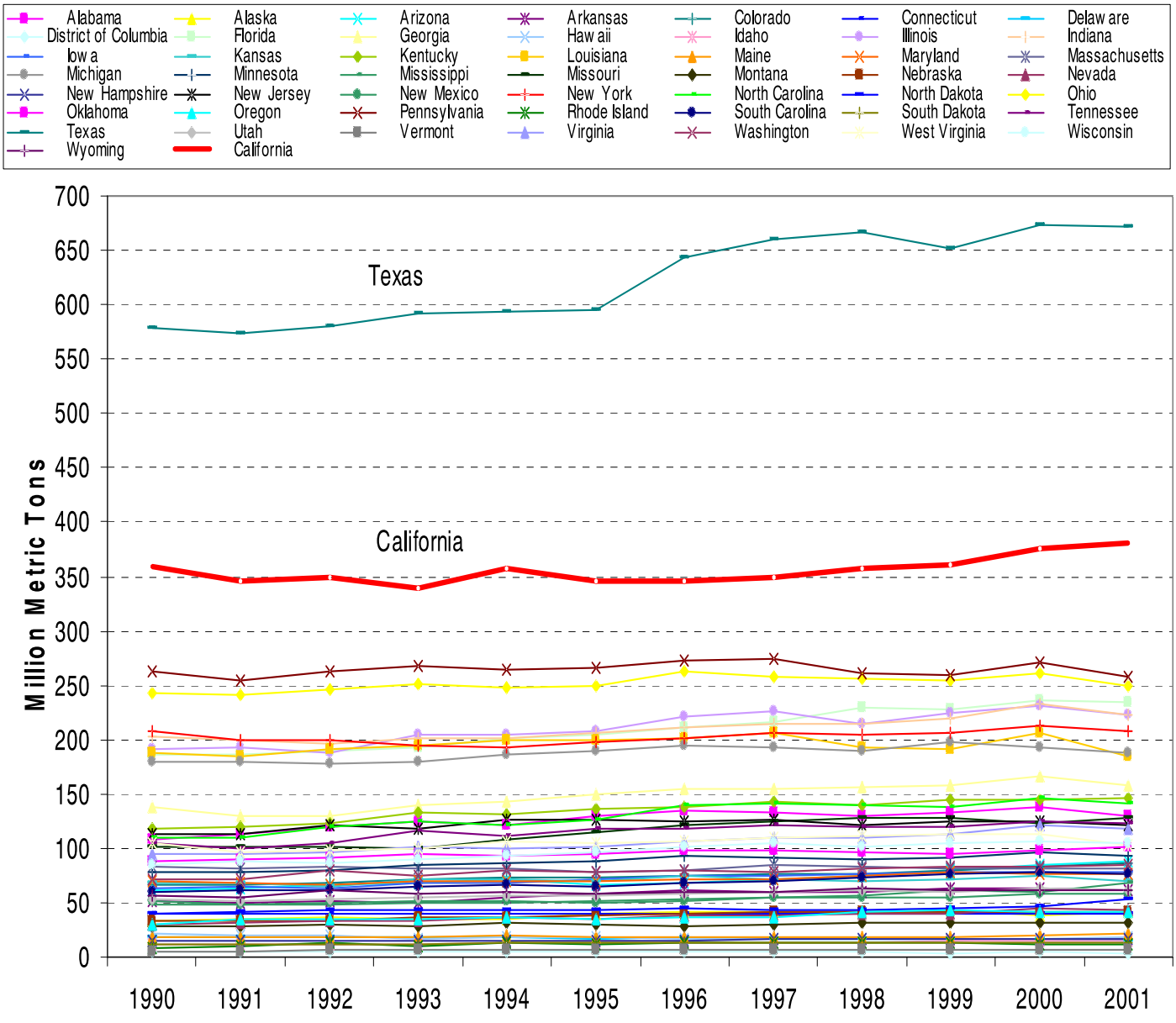
Table 2
Top Ten CO_2 Producing Nations between 1990-2004 (Emissions in Million Metric Tons (MMT) CO_2EQ)

Country	GHG Emissions (MMT CO_2EQ)	Percent of Global
1. United States	7017.32	21.06%
2. China	4057.31	12.17%
3. Japan	1340.08	4.02%
4. India	1214.25	3.64%
5. Germany	1004.79	3.02%
6. Canada	720.63	2.16%
7. Brazil	658.98	1.98%
8. United Kingdom	655.79	1.97%
9. Italy	567.92	1.70%
10. France	546.53	1.64%
Total Global	33,326	
California	*480*	*1.44%*

Source: United Nations Framework Convention on Climate Change, "National Greenhouse Gas Inventory Data for the Period 1990–2006 and Status of Reporting," October 19, 2006.

Global CO_2 emissions totaled about 33,326 MMT CO_2EQ in 2006. The United States released 7,017 MMT CO_2EQ in 2006, which is approximately 21% of the earth's total emissions.

Within the United States, California has the second highest level of GHG production with Texas having the highest. In 2001, the burning of fossil fuels produced over 81% of total GHG emissions. In relation to other states, California is the second highest producer of CO_2 by fossil fuels, as shown in Exhibit 3.



Source: California Energy Commission, "Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004," December 2006

Exhibit 3 - CO_2 Emissions from Fossil Fuel Combustion by State

1.3 Sources of Greenhouse Gas in California

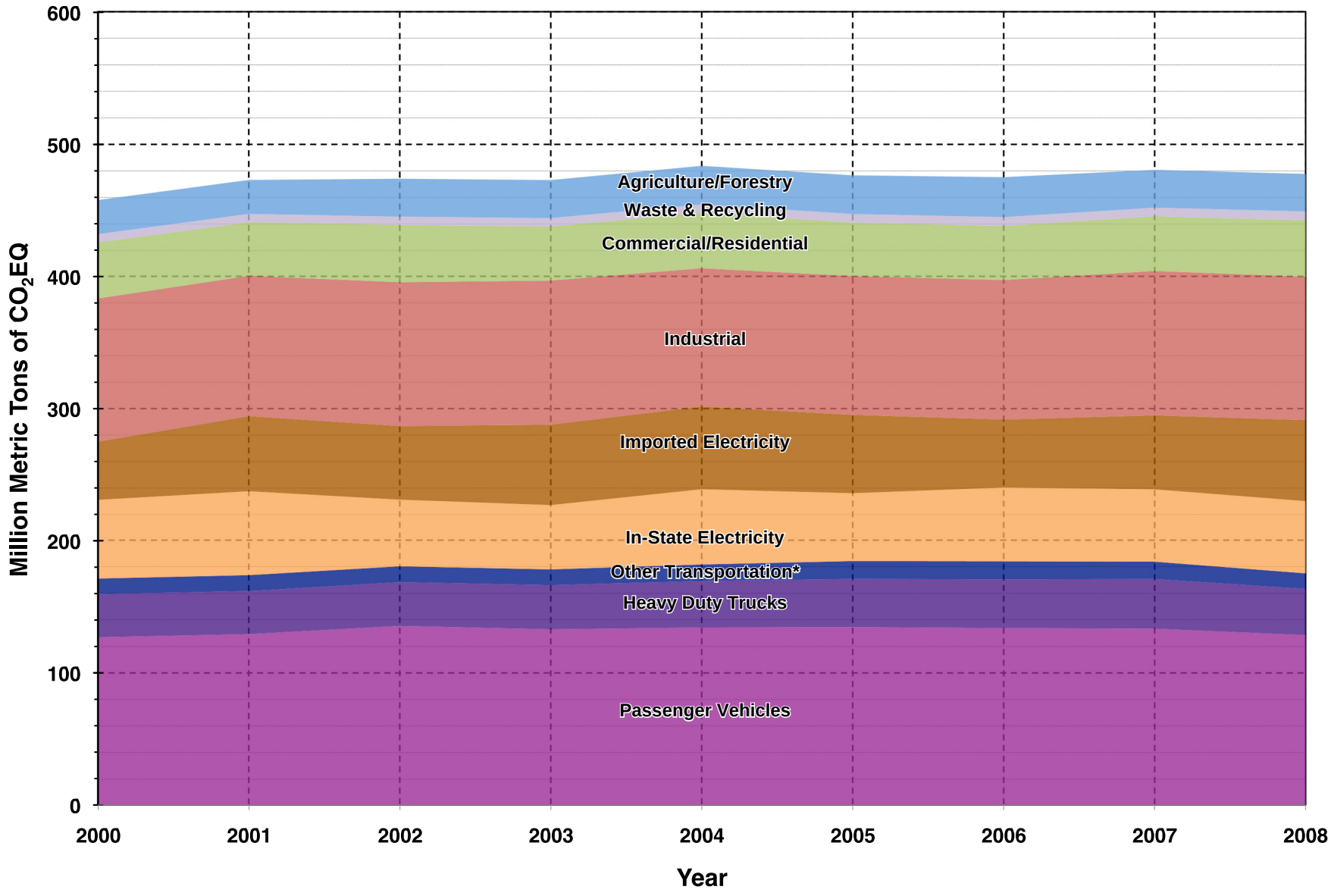
The California Energy Commission ("CEC") categorizes GHG generation by source into five broad categories. The categories are:

- **Transportation** includes the combustion of gasoline and diesel in automobiles and trucks. Transportation also includes jet fuel consumption and bunker fuel for ships.
- **Agriculture and forestry** GHG emissions are composed mostly of nitrous oxide from agricultural soil management, CO_2 from forestry practice changes, methane from enteric fermentation, and methane and nitrous oxide from manure management.
- **Commercial and residential** uses generate GHG emissions primarily from the combustion of natural gas for space and water heating.
- **Industrial** GHG emissions are produced from many industrial activities. Major contributors include oil and natural gas extraction; crude oil refining; food processing; stone, clay, glass, and cement manufacturing; chemical manufacturing; and cement production. Wastewater treatment plants are also significant contributors to this category.
- **Electric generation** includes both emissions from power plants in California as well as power plants located outside of the state that supply electricity to the state.

The amount of GHGs released from each of these categories in California from 2000 to 2008 is shown in Exhibit 4.

Examination of Exhibit 4 indicates that most of California's GHGs are emitted by transportation sources, such as automobiles, trucks, and airplanes. (The transportation sector is labeled as Passenger Vehicles, Heavy Duty Trucks, and Other Transportation in Exhibit 4.) Combustion of fossil fuels in the transportation sector contributed approximately 38% of the California GHG. This category was followed by the electric power sector (including both in-state and out-of-state sources) (24%) and the industrial sector (23%). Residential and commercial activity accounted for approximately 9% of the emissions. The smallest GHG contributors are the waste and recycling sector and the agricultural and forestry sector, which accounted for about 1% and 6%, respectively.

While California has the second highest rate of GHG production in the nation, it should also be noted that California has one of the lowest per capita rates of GHG emissions, as shown in Exhibit 5. According to Exhibit 5, California had the fourth lowest per capita rate of CO_2 production from fossil fuels in the United States. Wyoming produced the most CO_2 per capita,



*Includes Rail, Ships & Commercial Boats, Intrastate Aviation, and Unspecified Transportation Sources

Source: CARB Greenhouse Gas Inventory Website
http://www.arb.ca.gov/cc/inventory/inventory.htm, data last updated 5/12/10

Exhibit 4
California GHG Emissions by Sector

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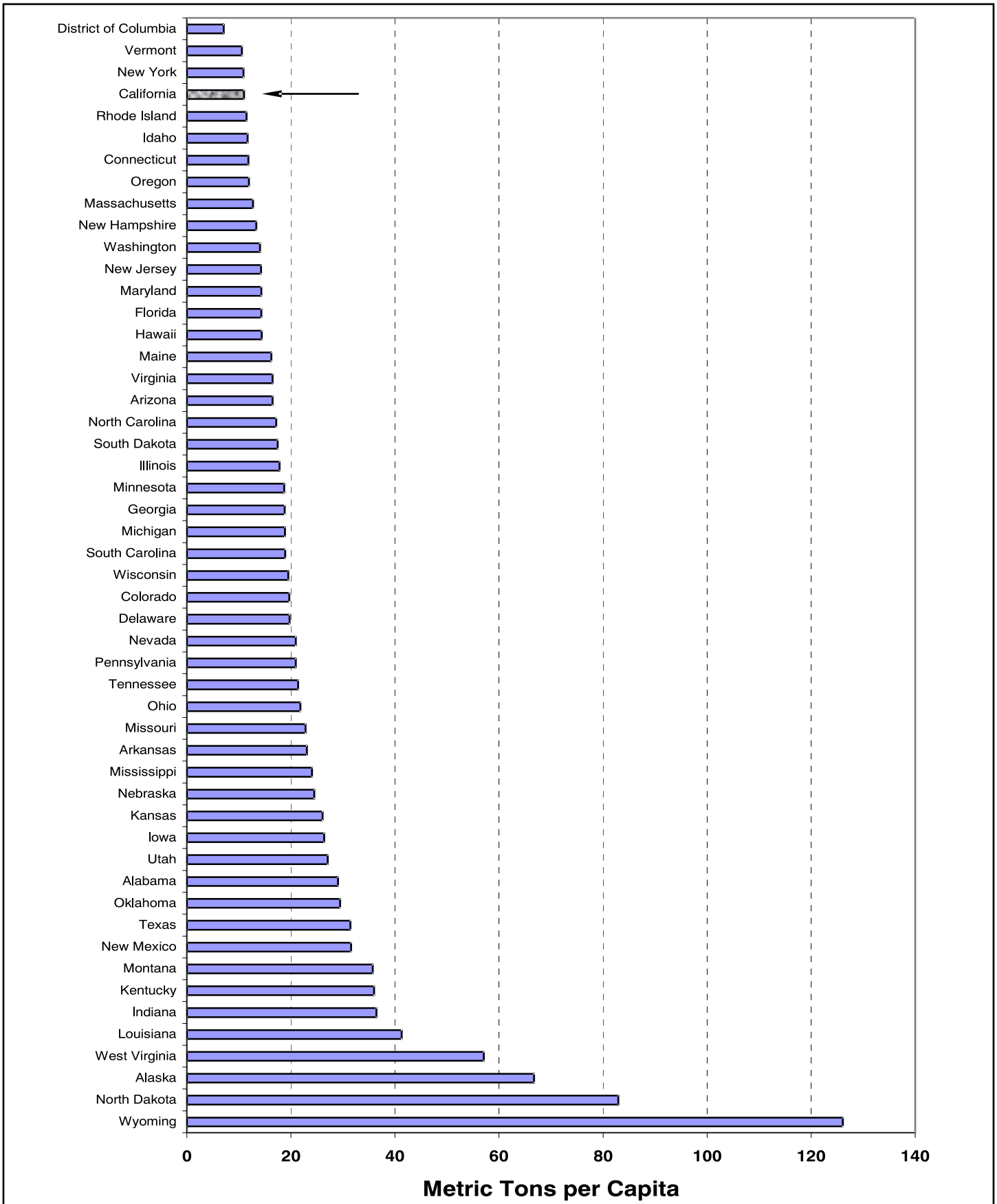

Source: California Energy Commission, "Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004," December 2006

Exhibit 5 - CO_2 Emissions From Fossil Fuels Per Capita (2001)

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1.4 Regulatory Framework

1.4.1 Federal Plans, Policies, Regulations, and Laws.

The federal government began studying the phenomenon of global warming as early as 1978 with the National Climate Protection Act, 92 Stat. 601, which required the President to establish a program to "assist the Nation and the world to understand and respond to natural and man-induced climate processes and their implications." The 1987 Global Climate Protection Act, Title XI of Pub. L. 100-204, directed the U.S. EPA to propose a "coordinated national policy on global climate change," and ordered the Secretary of State to work "through the channels of multilateral diplomacy" to coordinate efforts to address global warming. Further, in 1992, the United States ratified a nonbinding agreement among 154 nations to reduce atmospheric GHGs.

More recently, in *Massachusetts v. EPA* (April 2, 2007), the United State Supreme Court held that GHGs fall within the Clean Air Act's definition of an "air pollutant," and directed the EPA to consider whether GHGs are causing climate change. If so, the EPA must regulate GHG emissions from automobiles under the Clean Air Act.

While EPA has not finalized a regulation, it did issue a proposed rule on April 17, 2009. The rule declared that GHGs endanger human health and is the first step to regulation through the federal Clean Air Act. If it becomes final, the EPA would define air pollution to include the six key GHGs – CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6.

In addition, Congress has increased the corporate average fuel economy (CAFE) of the U.S. automotive fleet. In December 2007, President Bush signed a bill raising the minimum average miles per gallon for cars, sport utility vehicles, and light trucks to 35 miles per gallon by 2020. This increase in CAFE standard will create a substantial reduction in GHG emissions from automobiles, which is the largest single emitting GHG sector in California.

As of this writing, however, there are no adopted federal plans, policies, regulations or laws setting a mandatory limit on GHG emissions. Further, the EPA has not finalized its evaluation in the wake of *Massachusetts v. EPA*.

1.4.2 California State Plans, Policies, Regulations, and Laws.

California has distinguished itself as a national leader in efforts to address global climate change by enacting several major pieces of legislation, engaging in multi-national and multi-state collaborative efforts, and preparing a wealth of information on the impacts associated with global climate change.

In November 2008, the Governor issued Executive Order S-13-08 directing state agencies to plan for sea level rise and other climate change impacts. There are four key actions in the Executive Order: (1) initiation of a climate change adaptation strategy that will assess the state's expected climate change impacts where the state is most vulnerable, with recommendations by early 2009; (2) an expert panel on sea level rise will inform state planning and development efforts; (3) interim guidance to state agencies on planning for sea level rise in coastal and floodplain areas for new projects; and (4) initiation of a report on critical existing and planned infrastructure projects vulnerable to sea level rise. (http://gov.ca.gov/executive-order/11036/)

Pursuant to AB 32, the California Air Resources Board ("CARB") has adopted a number of relevant policies and directives. In December 2008, the Scoping Plan was adopted. The Plan is a central requirement of the statute. In addition, it has adopted a number of protocols for industry

and government sectors, including one for local government (http://www.arb.ca.gov/cc/protocols/localgov/localgov.htm). (See also, the Local Government Toolkit (http://www.coolcalifornia.org/local-government).

As directed by SB97, the Natural Resources Agency adopted Amendments to the CEQA Guidelines on December 30, 2009 to address greenhouse gas impacts. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010. The following provides a summary of the amendments:

- *Determining the Significance of the Environmental Effects Caused By a Project* (Guidelines § 15064(h)(3)) was amended to clarify the types plans that can be used to determine if a project's incremental contribution to a cumulative effect is not cumulatively considerable when the project complies with the plans and requires explanation how the plan ensures that the project's incremental contribution to the cumulative effect is not cumulatively considerable.

- *Determining the Significance of Impacts from Greenhouse Gas Emissions* (Guidelines § 15064.4) allows the lead agency to determine if greenhouse gas emissions are significant through a quantitative analysis, a qualitative analysis, or performance based standards. It defines factors, among others, to be considered when assessing the significance of impacts including; (1) the change in greenhouse gas emissions relative to existing environmental setting, (2) whether the project emissions exceed a threshold of significance, (3) to the extent that the project complies with a publicly reviewed and approved plan for the reduction of greenhouse gas emissions.

- *Thresholds of Significance* (Guidelines § 15064.7(c)) allows the lead agency to consider thresholds of significance previously adopted or recommended by other public agencies or experts as supported by substantial evidence when adopting thresholds of significance.

- *Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects-Mitigation Measures Related to Greenhouse Gas Emissions* (Guidelines § 15126.4(c)) requires lead agencies to consider feasible means of mitigation of greenhouse gas emissions including; (1) measures in an existing plan, (2) reductions resulting through the implementation of project features, project design or other energy conservation measures, (3) off-site measures including offsets, and (4) measures that sequester greenhouse gas.

- *Discussion of Cumulative Impac*ts (Guidelines § 15130(b)(1)(B) and Guidelines § 15130(d)) provides guidance on the use of planning documents and prior certified environmental documents in the analysis of cumulative impacts

- *Tiering and Streamlining the Analysis of Greenhouse Gas Emissions* (Guidelines § 15183.5) discusses the use of programmatic plans in the analysis of project specific environmental documents and provides suggested elements of a plan for reduction of greenhouse gas emissions.

- *Greenhouse Gas* (Guidelines § 150364.5) defines greenhouse gasses as including but not limited to carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

Assembly Bill 32, the California Global Warming Solutions Act of 2006 (Health and Safety Code § 38500 et seq.). In September 2006, Governor Arnold Schwarzenegger signed AB 32, the California Global Warming Solutions Act of 2006. In general, AB 32 directs the California Air Resources Board ("CARB") to do the following:

- On or before June 30, 2007, CARB shall publish a list of discrete early action measures for reducing GHG emissions that can be implemented by January 1, 2010;
- By January 1, 2008, establish the statewide GHG emissions cap for 2020, based on CARB's calculation of statewide GHG emissions in 1990 (an approximately 25 percent reduction in existing statewide GHG emissions);
- Also by January 1, 2008, adopt mandatory reporting rules for GHG emissions sources that "contribute the most to statewide emissions" (Health & Safety Code § 38530);
- By January 1, 2009, adopt a scoping plan that indicates how GHG emission reductions will be achieved from significant GHG sources through regulations, market mechanisms, and other strategies;
- On or before January 1, 2010, adopt regulations to implement the early action GHG emission reduction measures;
- On or before January 1, 2011, adopt quantifiable, verifiable, and enforceable emission reduction measures by regulation that will achieve the statewide GHG emissions limit by 2020; and
- On January 1, 2012, CARB's GHG emissions regulations become operative.
- On January 1, 2020, achieve 1990 levels of GHG emissions.

In a December 2006 report, CARB estimated that California emitted between 425 and 468 million metric tons of CO_2 in 1990. In December 2007, CARB finalized 1990 emissions at 427 million metric tons of CO_2. In the August 2007 draft report, CARB estimated California emitted approximately 480 million metric tons of CO_2 in 2004. Based on the U.S. Census Bureau California 2007 population of 36,553,215, this would result in about 13 metric tons of CO_2 per capita.

AB 32 takes into account the relative contribution of each source or source category to protect adverse impacts on small businesses and others by requiring CARB to recommend a de minimis (minimal importance) threshold of GHG emissions below which emissions reduction requirements would not apply. AB 32 also allows the Governor to adjust the deadlines mentioned above for individual regulations or the entire state to the earliest feasible date in the event of extraordinary circumstances, catastrophic events, or threat of significant economic harm.

CARB "Early Action Measures" (June 30, 2007). On June 21, 2007, CARB approved its early action measures to address climate change, as required by AB 32. The three measures include: (1) a low carbon fuel standard, which will reduce the carbon-intensity in California fuels, thereby reducing total CO_2 emissions; (2) reduction of refrigerant losses from motor vehicle air conditioning system maintenance through the restriction of "do-it-yourself" automotive

refrigerants; and (3) increased CH_4 (methane) capture from landfills through the required implementation of state-of-the-art capture technologies.

CARB Mandatory Reporting Regulations (December 2008). Under AB 32, CARB propounded regulations to govern mandatory greenhouse gas emissions reporting for certain sectors of the economy, most dealing with approximately 94 percent of the industrial and commercial stationary sources of emissions. Regulated entities include electricity generating facilities, electricity retail providers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and industrial sources that emit over 25,000 metric tons of CO_2 from stationary source combustion.

Senate Bill 97 (2007). By July 1, 2009, the Governor's Office of Planning and Research (OPR) is directed to prepare, develop, and transmit to the Resources Agency amendments to the CEQA Guidelines for the feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, as required by the California Environmental Quality Act. The Resources Agency is required to certify and adopt these guidelines by January 1, 2010. OPR is required to periodically update these guidelines as CARB implements AB 32. In addition, SB 97 states that the failure to include a discussion of greenhouse gas emissions in any CEQA document for a project funded under the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006, or projects funded under the Disaster Preparedness and Flood Prevention Bond Act of 2006 shall not be a cause of action under CEQA. This last provision was to be repealed on January 1, 2010.

Executive Order S-01-07 (2007). Executive Order S-01-07 calls for a reduction in the carbon intensity of California's transportation fuels by at least 10 percent by 2020. As noted above, the low-carbon fuel standard ("LCFS") was adopted by CARB as one of its three "early action measures" on June 21, 2007.

Senate Bill 1368 (2006) (Public Utilities Code §§ 8340-41). SB 1368 required the California Public Utilities Commission ("PUC") to establish a "GHG emission performance standard" by February 1, 2007, for all electricity providers under its jurisdiction, including the state's three largest privately-owned utilities. Pub. Res. Code § 8341(d)(1). These utilities provide approximately 30 percent of the state's electric power. After the PUC acted, the CEC adopted a performance standard "consistent with" the PUC performance standard and applied it to local publicly-owned utilities on May 23, 2007 (over one month ahead of its June 30, 2007 deadline). Cal. Pub. Res. Code § 8341(e)(1). However, the California Office of Administrative Law ("OAL") found four alleged flaws in the CEC's rulemaking. The CEC overcame these alleged flaws and adopted reformulating regulations in August 2007.

Senate Bill 107 (2006). Senate Bill 107 ("SB 107") requires investor-owned utilities such as Pacific Gas and Electric, Southern California Edison and San Diego Gas and Electric, to generate 20 percent of their electricity from renewable sources by 2010. Previously, state law required that this target be achieved by 2017.

Senate Bill 375 (September 2008). In September 2008, SB 375 was signed by Governor Schwarzenegger. SB 375 is a comprehensive global warming bill that helps to achieve the goals of AB 32. To help establish these targets, the CARB assigned a Regional Targets Advisory Committee to recommend factors to be considered and methodologies for setting greenhouse gas emission reduction targets. SB 375 also provides incentive – relief from certain CEQA requirements for development projects that are consistent with regional plans that achieve the targets. SB 375 requires CARB to develop, in collaboration with the Metropolitan Planning

Organization (MPO), passenger vehicle greenhouse gas emissions reduction targets for 2020 and 2035 by September 30, 2010. The MPO is required to include and adopt, in their regional transportation plan, a sustainable community strategy that will meet the region's target provided by CARB.

Western Regional Climate Action Initiative (Arizona, California, New Mexico, Oregon, Utah, Washington)(2007). Acknowledging that the western states already experience a hotter, drier climate, the Governors of the foregoing states have committed to three time-sensitive actions: (1) by August 26, 2007, to set a regional goal to reduce emissions from the states collectively, consistent with state-by state goals; (2) by August 26, 2008, to develop "a design for a regional market-based multi-sector mechanism, such as a load-based cap and trade program, to achieve the regional GHG reduction goal;" and (3) to participate in a multi-state GHG registry "to enable tracking, management, and crediting for entities that reduce GHG emissions, consistent with state GHG reporting mechanisms and requirements."

Executive Order S-3-05 (June 1, 2005). Executive Order S-3-05 calls for a reduction in GHG emissions to 2000 levels by 2010; 1990 levels by 2020; and for an 80 percent reduction in GHG emissions below 1990 levels by 2050. It also directs the California Environmental Protection Agency ("CalEPA") to prepare biennial science reports on the potential impact of continued global warming on certain sectors of the California economy.

California's Renewable Energy Portfolio Standard Program (2005). In 2002, California established its Renewable Energy Portfolio Standard Program, which originally included a goal of increasing the percentage of renewable energy in the state's electricity mix to 20 percent by 2017. The state's most recent 2005 Energy Action Plan raises the renewable energy goal from 20 percent by 2017, to 33 percent by 2020.

Title 24, Part 6, California Code of Regulations (2005). In 2005, California adopted new energy efficiency standards for residential and nonresidential buildings in order to reduce California's energy consumption. This program has been partially responsible for keeping California's per capita energy use approximately flat over the past 30 years.

Assembly Bill 1493 (2002) (Health and Safety Code § 43018.5). Assembly Bill 1493 ("AB 1493") required CARB to develop and adopt the nation's first GHG emission standards for automobiles. Not only have litigants challenged their legality in federal court, but also USEPA denied California's request for a Clean Air Act waiver to implement its regulations. As of this writing, California and other states who seek to adopt California's greenhouse gas emissions standards for automobiles are challenging USEPA's denial in federal court.

Climate Action Registry (2001). California Senate Bills 1771 and 527 created the structure of the California Climate Action Registry ("Registry"), and former Governor Gray Davis signed the final version of the Registry's enabling legislation into law on October 13, 2001. These bills establish the Registry as a non-profit entity to help companies and organizations establish GHG emissions baselines against which future GHG emission reduction requirements could be applied. Using any year from 1990 forward as a base year, participants can record their annual GHG emissions with the Registry. In return for this voluntary action, the State of California promises to offer its "best efforts" to ensure that participants receive consideration for their early action if they are subject to any future state, federal, or international emissions regulatory scheme.

1.4.3 South Coast Air Quality Management District Plans, Policies, Regulations and Laws.

The South Coast Air Quality Management District ("SCAQMD") adopted a "Policy on Global Warming and Stratospheric Ozone Depletion" in April 1990. The policy commits the SCAQMD to consider global impacts in rulemaking and in drafting revisions to the Air Quality Management Plan. In March 1992, the SCAQMD Governing Board reaffirmed this policy and adopted amendments to the policy to include the following directives:

- Phase out the use and corresponding emissions of chlorofluorocarbons (CFCs), methyl chloroform (1,1,1-trichloroethane or TCA), carbon tetrachloride, and halons by December 1995;
- Phase out the large quantity use and corresponding emissions of hydrochlorofluorocarbons (HCFCs) by the year 2000;
- Develop recycling regulations for HCFCs (e.g., SCAQMD Rules 1411 and 1415);
- Develop an emissions inventory and control strategy for methyl bromide; and,
- Support the adoption of a California GHG emission reduction goal.

The legislative and regulatory activity detailed above is expected to require significant development and implementation of energy efficient technologies and shifting of energy production to renewable sources.

1.4.4 University of California Irvine Plans, Policies, Regulations, and Laws

The University of California, Irvine adopted its climate action and sustainability plan entitled "Achieving Net Zero: Climate Change & Sustainability" in June 2009 which is compliant with the emissions reductions defined in AB32. The goals presented in the plan include the University achieving 2000 GHG emissions levels by 2012, 1990 GHG emissions levels by 2020, and 80% below 1990 GHG emissions levels by 2050 with a commitment to achieve climate neutrality as soon as possible. An aggressive portfolio of over 250 energy efficiency projects to reduce greenhouse gas emissions are identified in the Plan including lighting retrofits, refrigerator replacements, computer power management software, and monitoring based commissioning projects. In addition, the plan includes an expansion of the campus' use of more low carbon renewable energy sources in its energy infrastructure.

Transportation emissions will be reduced through a variety of means including a new bike sharing program and increased participation in alternative transportation modes. Lastly, emissions reductions will be achieved through educational programs geared towards behavioral change. On the road to climate-neutrality, UCI will use renewable energy certificates and offsets when all possible direct actions have been exhausted. UCI will adjust the climate action plan accordingly as the campus continues to identify new strategies to meet its emissions reduction targets. Goals identified in the plan that are directly applicable to the project include:

- Build all new construction (except laboratory and acute-care facilities) to a minimum standard equivalent to LEED Silver. Laboratories will be built to a minimum standard equivalent to LEED 2.1 certified.
- All new building projects, other than acute care facilities, will outperform the required provisions of the California Energy Code (Title 24) energy-efficiency standards by 20 percent or more.

- New buildings employ materials, systems, and design features that will be long lasting and avoid the expense of major maintenance (defined as greater than one percent of the value) for twenty years.

In July 2003 the University of California adopted the Policy on Sustainable Practices to be implemented system-wide within the University's campuses, including UCI. Since then, the policy has been updated several times, most recently in September 2009. The document contains eight sustainability categories which include policies to address GHG emissions. Policy highlights from each of the eight categories follow:

Green Building Design

- New buildings (other than acute care) shall outperform Title 24 energy efficiency standards by 20% and strive to outperform by 30%.
- New buildings shall achieve LEED-New Construction (NC) "Silver" Rating and strive to achieve LEED-NC "Gold" rating.
- New buildings shall achieve at least two of the available credits in LEED-NC's Water Efficiency Category and cooperate with local water districts to conserve water and meet district water use reduction goals.
- The measures required by the Policy Guidelines will be incorporated into all new building projects, other than acute care facilities, submitted for first formal scope and budget approval as of July 1, 2009.

Clean Energy Standards:

- Implement a systemwide portfolio approach to reduce consumption of nonrenewable energy including a combination of energy efficiency projects, the incorporation of local renewable power measures for existing and new facilities, green power purchases from the electrical grid, and other energy measures with equivalent demonstrable effect on the environment and reduction in fossil fuel usage.
- Strive to achieve a level of grid-provided electricity purchases from renewable sources that will be similar to the State's Renewable Portfolio Standard, which sets a goal of procuring 20 percent of its electricity needs from renewable sources by 2010.
- Develop a strategic plan for siting renewable power projects in existing and new facilities with a goal of providing up to 10 megawatts of local renewable power by 2014.
- Develop a strategic plan for implementing energy efficiency projects for existing buildings and infrastructure to include operational changes and the integration of best practices with a goal of reducing system-wide growth-adjusted energy consumption by 10% or more by 2014 from the year 2000 base consumption level.
- Pursue marketing of emission credits as a means to bridge the cost-feasibility gap for green power projects

Climate Protection Practices:

- Each campus will pursue individual membership with either the California Climate Action Registry (CCAR) or The Climate Registry (TCR) and form a Climate Change Working Group to monitor progress towards reaching GHG reduction goals and evaluate programs to reach these goals.

- Each campus will complete a greenhouse gas emissions inventory that will be updated at least once every other year.
- Develop an action plan for becoming climate neutral.
- By September 15, 2009 each campus will implement seven of the tangible actions to reduce GHG emissions that are outlined in the ACUPCC.

Sustainable Transportation Practices:

- Facilitate sharing of best practices within the university and among other educational institutions
- Develop mechanism for ongoing involvement of students in efforts for achieving sustainable campus transportation.
- Implement pre-tax transit pass program for employees.
- Pursue the expansion of Transportation Demand Management (TDM) programs including carshare, carpools, vanpools, buspools, campus shuttles, transit, bicycle circulation system, pedestrian circulation system, emergency rides home, telecommuting, flexible schedules, and parking management.

Sustainable Operations:

- Develop a plan to operate and maintain all scope eligible existing buildings at a LEED for Existing Buildings Operations and Maintenance (LEED-EBOM) "Certified" Rating in a comprehensive campus approach.
- Work closely with the U.S. Green Building Council (USGBC) to address the needs and concerns of campuses in the further development of LEED-EBOM rating system and the USGBC's "Portfolio Program"

Recycling and Waste Management:

- Develop an Integrated Waste Management Plan (IWMP) with the following waste diversion goals: 50% by June 30, 2008, 75% by June 30, 2012, and ultimate goal of zero waste by 2020.
- Incorporate waste reduction and recycling elements in Green Building Design and Sustainable Operations implementation goals and campus operations as they are developed.

Environmentally Preferable Purchasing Practices:

- Utilize University purchasing power and academic and research excellence to advance the development of sustainable technologies by pressing markets to continually improve resource productivity.
- For products and services that do not currently offer environmentally preferable alternatives, the University will work with its existing and potential suppliers to develop options.
- Continue to transition all locations toward electronic and paperless processes and utilize web-based catalogs and programs.
- Focus procurement efforts only on products with ENERGYSTAR ratings where available.

- Adopt a minimum standard of 30% Post Consumer Waste (PCW) recycled content paper for office supplies and 100% PCW recycled content paper for uncut paper uses including but not limited to janitorial supplies.
- Achieve Bronze registration or higher under the Electronic Products Environmental Assessment Tool (EPEAT) for all desktop computers, laptops, and computer monitors purchased by the University. Provide additional consideration for electronics products that have achieved EPEAT Silver or EPEAT Gold registration.
- Recycle all electronic waste in a responsible manner.
- Require take-back program be offered for packaging of electronics products.
- Incorporate the Environmentally Preferable Purchasing Policy into existing strategic sourcing and other training programs. Provide training seminars, supplier fairs, and workshops on purchasing environmentally preferred products and establish educational programs and materials.

Campus Foodservice Operations:

- Achieve goal of procuring 20% sustainable food products by the year 2020 for Campus Foodservice Operations.
- Provide student patrons sustainable food options as well as access to educational materials that will help support their food choices.
- Engage in activities with surrounding community that support common goals regarding sustainability.
- Explore the use of third-party "green business" certifications for sustainable dining operations. If cost effective, each campus will certify one facility by December 2010 through one of the following: (1) City or county's "green business" program, (2) Green Seal's Restaurants and Food Services Operations certification program, or (3) the Green Restaurant Association certification program.

2.0 Potential Greenhouse Gas Impacts

2.1 Significance Thresholds

At this time, a widely accepted threshold for determining the significance of GHG emissions has not been established. Both CARB and SCAQMD have been working to establish significance thresholds for GHG impacts and have published draft thresholds for review and comment, but no significance thresholds applicable to general projects have been adopted by these agencies. Section 2.1.1 discusses CARB's significance threshold development and section 2.1.2 discusses SCAQMD's significance threshold development. These proposed thresholds will be used as guidance in a qualitative assessment of the project's GHG impact potential.

2.1.1 California Air Resource Board Significance Thresholds

The CARB is the lead agency for implementing AB 32. In October 2008, CARB published a Proposed Scoping Plan, in coordination with the Climate Action Team (CAT), to establish a comprehensive set of actions designed to reduce overall greenhouse gas emissions in California. The measures in the Scoping plan approved by the Board will be developed over the next two years and be in place by 2020. California is the fifteenth largest emitter of GHGs on the planet, representing about 2 percent of the worldwide emissions. According to climate scientists, California and the rest of the developed world will have to cut emissions by 80 percent from

today's levels to stabilize the amount of CO_2 in the atmosphere and prevent the most severe effects of global climate change. This long-range goal is reflected in California Executive Order S-3-05 that requires an 80 percent reduction of greenhouse gases from 1990 levels by 2050. Reducing GHG emissions to 1990 levels means cutting approximately 30 percent from business-as-usual emissions levels projected for 2020, or about 15 percent from today's levels. On a per-capita basis, that means reducing our annual emissions of 14 tons of CO_2 equivalent for every man, woman and child in California down to about 10 tons per person by 2020.

The scoping plan asserts that significant progress can be made toward the 2020 goal using existing technologies, and improving the efficiency of energy use. Other solutions involve improving our state's infrastructure, transitioning to cleaner and more secure sources of energy, and adopting 21st century land use planning and development practices. Key elements of California's recommendations for reducing its greenhouse gas emissions to 1990 levels by 2020 include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewable energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long term commitment to AB 32 implementation.
- CARB anticipated 5 million metric tons of CO_2 equivalent (MMT CO_2EQ) reduction for Regional Transportation-Related Greenhouse Gas Targets.

To meet the 1990 target established by AB 32, CARB recommends a de minimis (minimal importance) emission threshold of 0.1 MMT annual (100,000 MT per year) CO_2EQ per transportation source category. Source categories whose total aggregated emissions are below this level are not proposed for emission reduction requirements in the Scoping Plan but may contribute toward the target via other means. As each regulation to implement the Scoping Plan is developed, CARB and other agencies will consider more specific de minimis levels below which the regulatory requirements would not apply. These levels will consider the cost to comply, especially for small businesses, and other factors. Until approved thresholds and guidelines are adopted at the local and regional level, the proposed de minimis threshold of 100,000 MT CO_2EQ per year for transportation sources will be utilized for transportation sources.

In addition to the Proposed Scoping Plan, CARB released the Preliminary Draft Staff Proposal (Staff Proposal) on October 24, 2008 with the objective of developing interim significant thresholds for commercial and residential projects. CARB has proposed a threshold of 7,000 annual MT for industrial operational sources but this threshold has not been adopted. At this time, CARB has not proposed thresholds applicable for residential and commercial sources.

Therefore, criteria for determining threshold levels for residential and commercial sources have yet to be defined. Under CARB's Staff Proposal, recommended approaches for setting interim significant thresholds for GHG under the CEQA are underway. CARB staff proposes to define certain performance standards (e.g., for energy efficiency) by referencing or compiling lists from existing local, state or national standards. For some sub-sources of GHG emissions (e.g., construction, transportation, waste), CARB staff has not identified reference standards.

The Staff Proposal's Potential Performance Standards and Measures were released in December 2008. Inside the Staff Proposal, CARB's Potential Performance Standard and Measures included some construction measures. These guideline measures are:

- Provide alternative transportation mode options or incentives for workers to and from worksite on days that construction requires 200 or more workers; and
- Recycle and/or salvage at least 75% of non-hazardous construction and demolition debris by weight (residential) or by weight in volume (commercial); and
- Use recycled materials for at least 20% of construction materials based on cost for building materials, based on volume for roadway, parking lot, sidewalk and curb material. Recycled materials may include salvaged, reused, and recycled content materials.

CARB's Staff Proposal has identified California Energy Commission's (CEC) Tier II Energy Efficiency goals as an appropriate performance standard for energy use. Under State Law, the CEC is required to establish eligibility criteria, conditions for incentives, and rating standards. Thus, the CEC established energy efficiency standards for homes and commercial structures, and requires new buildings to exceed current building standards by meeting Tier Energy Efficiency goals. Currently, CEC's proposed guidelines for the solar energy incentive program recommend a Tier II goal for residential and commercial projects of a 30% reduction in building combined space heating, cooling, and water heating energy compared to the 2008 Title 24 standards.

Existing green building rating systems like LEED, GreenPoint Rated, the California Green Building Code, and others, contain examples of measures that are likely to result in substantial GHG emission reductions from residential and commercial projects. Performance standards that already exist and have been proven to be effective, at the local, state, national or international level, are preferable. For residential and commercial projects, CARB staff has proposed that the GHG emissions of some projects that meet GHG performance standards might under some circumstances still be considered cumulatively considerable and therefore significant. However, criteria threshold for residential and commercial has yet to be developed.

2.1.2 SCAQMD's Significance Thresholds

On December 5, 2008, the South Coast Air Quality Management District (SCAQMD) adopted GHG significance threshold for Stationary Sources, Rules and Plans where the SCAQMD is lead agency. The threshold uses a tiered approach. The project is compared with the requirements of each tier sequentially and would not to result in a significant impact if it complies with any tier. Tier 1 excludes projects that are specifically exempt from SB97 from resulting in a significant impact. Tier 2 excludes projects that are consistent with a GHG reduction plan that has a certified final CEQA document and complies with AB 32 GHG reduction goals. Tier 3 excludes projects with annual emissions lower than a screening threshold. For industrial stationary source projects the SCAQMD adopted a screening threshold of 10,000 MT CO_2EQ/year. This threshold was selected to capture 90% of the GHG emissions from these types of projects where the

combustion of natural gas is the primary source of GHG emissions. SCAQMD concluded that projects with emissions less than the screening threshold would not result in a significant cumulative impact. Tier 4 consists of three decision tree options. Under the first option, the project would be excluded if design features and/or mitigation measures resulted in emissions 30 percent lower than business as usual emissions. Under the second option the project would be excluded if it had early compliance with AB 32 through early implementation of CARB's Scoping Plan measures. Under the third option, project would be excluded if it met sector based performance standards. However, the specifics of the Tier 4 compliance options were not adopted by the SCAQMD board to allow further time to develop the options and coordinate with CARB's GHG significance threshold development efforts. Tier 5 would exclude projects that implement offsite mitigation (GHG reduction projects) or purchase offsets to reduce GHG emission impacts to less than the proposed screening level

While not adopted by the SCAQMD Board, the guidance document prepared for the stationary source threshold (SCAQMD 2008b) also suggested the same tiered approach for residential and commercial projects with a 3,000 MTCO_2EQ/year screening threshold. However, at the time of adoption of the industrial stationary source threshold the SCAQMD felt additional analysis was required along with coordination with CARB's GHG significance threshold development efforts.

At the most recent SCAQMD GHG working group meeting (November, 2009), SCAQMD staff presented two options for screening thresholds for residential and commercial projects. The first option would have different thresholds for specific land uses. The proposed threshold for residential projects is 3,500 MT CO_2EQ/year, the commercial threshold is 1,400 MT CO_2EQ/year, and the mixed-use threshold is 3,000 MT CO_2EQ/year. The second option would apply the 3,000 MT CO_2EQ/year screening threshold for all commercial/residential projects. Lead agencies would be able to select either option. These thresholds are based on capturing 90% of the emissions from projects and requiring them to comply with the higher tiers of the threshold (i.e., performance requirements or GHG reductions outside of the project) to not result in a significant impact.

Staff also presented updated for compliance options for Tier 4 of the significance thresholds. The first option would be a reduction of 23.9% in GHG emissions over the base case. This percentage reduction represents the land use sector portion of the CARB Scoping Plan's overall reduction of 28%. This target would be updated as the AB 32 Scoping Plan is revised. The base case scenario for this reduction still needs to be defined. Residual emissions would need to be less than 25,000 MT CO_2EQ/year to comply with the option. Staff proposed efficiency targets for the third option of 4.6 MT CO_2EQ/year per service population (population employment) for project level analysis and 6.6 MT CO_2EQ/year for plan level analyses. For project level analyses, residual emissions would need to be less than 25,000 MT CO_2EQ/year to comply with this option.

For this project the 3,000 MT CO_2EQ per year screening threshold will be used for the significance threshold for this project. The methodology recommends that total construction emissions be amortized over a 30-year period or the project's expected lifetime if it is less than 30 years. The SCAQMD's working group has not set a date for finalizing the recommendations.

2.2 Project Emissions Calculation Methodology

GHG emissions during construction and operation of the project were estimated using the methodologies presented below. Section 2.2.1 presents the methodologies used to estimate construction related GHG emissions and Section 2.2.2 presents the methodologies used to estimate operational GHG emissions.

2.2.1 Construction Emissions

The URBEMIS2007 program (version 9.4.2) was used to calculate the emissions from the associated with construction of the project. URBEMIS2007 is a computer model developed by a group of California air districts that uses emission factors from CARB's EMFAC2007 model for on-road vehicle emission estimates and emission factors from CARB's OFFROAD model for off-road vehicle and equipment emission estimates. The sources of GHG emissions during construction include off-road construction vehicles and equipment, on-road haul trucks, and employee vehicles. The URBEMISv9.2.4 model only calculates CO_2 emissions and does not include other GHG emissions generated by construction activities (such as CH_4, N_2O, and Fluorinated Gases), CO_2 emissions comprise approximately 99.6 percent of emissions from burning diesel fuel. Consequently, non-CO_2 GHG emissions represent a very small percentage (approximately 0.4 percent) of the total construction equipment GHG emissions and would not represent a significant source of GHG emissions generated by the proposed project during construction, even when combined with CO_2 emissions. Therefore, non-CO_2 construction GHG emissions have not been quantified in this analysis.

A description of the general construction activities and the equipment expected to be utilized for these activities was provided by the project applicant and are described in detail in the following section.

2.2.1.1 Construction Activities

Construction of the UCI Alumni Center Building is anticipated to begin in the first week of September 2011 and take approximately 16 months to complete. Table 3 presents the estimated construction schedule used to calculate pollutant emissions. Delays in the start for each phase of construction would not significantly affect emission estimates. In fact, the URBEMIS program includes a reduction in on-road and off-road vehicle exhaust emissions each year to account for new construction equipment and on-road vehicles manufactured under stricter emission standards becoming a larger part of the construction fleet (a fleet average emission factor is used to estimate emissions). So for emissions modeling purposes, a delay moving the activity into the following year would actually result in a slight reduction in the exhaust emissions estimates. Lengthening the duration of each activity would result in the same or lower daily emissions as daily activity levels for emission sources would either not change or decrease as the work is spread out over a longer period of time. A shortening of any of the construction activities assumed could result in higher emissions and would require a re-analysis of the emission impacts.

Table 3
Estimated Construction Schedule

Activity	Start	Duration (Weeks)	End
Grading	August 29, 2011	10	November 4, 2011
Construction	November 7, 2011	60	December 28, 2012
Arch Coating	December 17, 2012	2	December 28, 2012
Total Duration		**70 (16.1 Months)**	

The following paragraphs describe the activity assumptions used to calculate emissions for each of the construction activities discussed above. The URBEMIS model output files are presented in the appendix.

Grading is the grading of project site in preparation of building construction. This work will occur over the approximately 1.0-acres of the project site and is estimated to take two weeks. The project will require the export of approximately 20,000 cubic yards of material and approximately 2,000 cubic yards of material is expected to be moved on site. The emissions calculation includes 23 daily haul truck trips with a round trip distance of 20 miles for the exported materials. Equipment assumed to be used during grading includes (1) tractor/loader/backhoe and (1) water truck. The URBEMIS2007 default assumptions were used to estimate emissions from worker trips.

Construction is the construction of the proposed building. Building construction emissions were calculated for the portion of construction with the greatest amount of activity that will result in the highest emissions. Equipment assumed to be used during construction includes (3) welders, (2) forklifts, (1) crane, (1) tractor/loader/backhoe, and (2) aerial lifts. The URBEMIS2007 default assumptions were used to estimate emissions from material deliveries and worker trips.

Architectural Coating is the painting of the new building. VOCs are emitted from these coatings as well as the solvents used in cleanup of the coatings. The amount of VOCs that are emitted is dependent on the specific coating being used and its VOC content. Architectural coating emissions were estimated utilizing URBEMIS2007 default assumptions.

2.2.2 Operational Emissions

The primary source of GHG emissions generated by the proposed project will be from motor vehicles. Other emissions from the project will be generated from the combustion of natural gas for space and water heating, as well as off-site GHG emissions from the generation of electricity consumed by the project.

GHG emissions from motor vehicles, natural gas consumption and landscape maintenance associated with the project were calculated by using URBEMIS2007 (version 9.2.4). URBEMIS2007 is a computer model developed by a group of California air districts that uses emission factors from CARB's EMFAC2007 model for on-road vehicle emission estimates. Emissions from landscaping and maintenance were calculated using URBEMIS default assumptions. The traffic engineer for the project, Austin-Foust Associates, calculated the daily trip generation rate to be 188 trips per day based on 18,000 assignable square feet generating 10.44 trips per day per thousand square feet.

The URBEMIS program uses emission factors from EMFAC2007 to estimate vehicular emissions. EMFAC2007 is published by CARB. It should be noted that the CO_2 emission estimates from the EMFAC2007 program are not used as the basis for CARB's official GHG inventory. For the official GHG inventory CO_2 emissions are proportional to fuel usage. This results in a projected reduction in fleet average CO_2emissions in the future as newer more fuel efficient vehicles replace older less efficient vehicles. EMFAC2007 shows a reduction in emissions over time for passenger vehicles but an increase in emissions for medium duty and heavy duty trucks. This inconsistency is noted on CARB's EMFAC website (http://www.arb.ca.gov/msei/onroad/latest_version.htm) and CARB is currently working to reconcile the emissions estimates. However, the difference between the emission estimates is small and within the margin of error of the other data used to calculate emissions for this analysis and the relative change in emissions does not differ substantially using the two methods.

The most notable greenhouse gases (GHG) are nitrous oxide (N_2O), methane (CH_4) and carbon dioxide. CO_2. URBEMIS only calculates CO_2 emissions and does not calculate emissions from other GHGs including CH_4, NO_2 and fluorocarbons. For natural gas combustion, the CO_2 emissions represent 99.7% of the total CO_2EQ emissions. For gasoline powered motor vehicles and landscape equipment, the CO_2 emissions represent approximately 99.5% of the total CO_2EQ emissions. Therefore, the CO_2 emissions predicted by URBEMIS represent almost the entirety of the GHG emissions from these sources.

The generation of electricity consumed by the project will produce GHG emissions. The SCAQMD CEQA Air Quality Handbook estimates office energy consumption at 12,950 kWh per thousand square feet per year. This usage rate was multiplied by the gross square footage of the building and emission factors obtained from the TABLE C.2 of the California Climate Action Registry General Reporting Protocol. Emissions for the CAMX region (most of California) are estimated to be 742.12 lbs/MWh of CO_2, 0.0302 lbs/MWh of CH_4, and 0.081 lbs/MWH of N_2O. For electrical generation, CH_4 represents 0.9% of the total CO_2EQ emissions and N_2O represents 0.34% of the total CO_2EQ emissions. CH_4 and N_2O emissions are included in the CO_2EQ emissions reported below.

3.0 Estimate of Project Greenhouse Gas Emissions

Using the methodologies discussed in Section 2.2, greenhouse gas emissions associated with the project were calculated and are presented below. Emissions associated with construction activities are presented in Section 3.1. Operational emissions are presented in Section 3.2.

3.1 Construction Emissions

Using the methodologies described in Section 2.2.1, CO_2 emissions during construction of the project were calculated and are presented in Table 4. The total annual metric tons of CO_2EQ emissions for each construction activity are presented.

Table 4
Total Construction CO_2 Emissions

Year Activity	CO_2 Emissions (MT/yr)
2011	
Grading	58.6
Construction (2011)	31.1
2012	
Construction (2012)	201.9
Painting	0.4
Total Construction CO_2 Emissions (MT)	**292.0**
Project Life Average Annual CO_2 Emission (MT)*	**9.7**

* Based on 30 Year Project Life Per SCAQMD Significance Thresholds

Table 4 also shows the project lifetime average annual construction emissions. The SCAQMD GHG guidance recommends that construction emissions be amortized over a 30-year project lifetime and added to the operational emissions to determine significance. This is done in the next section.

3.2 Operational Emissions

The impact of the proposed project is measured against the net increase in emissions that will result from the implementation of the project. Using the methodologies described in Section 2.2 the greenhouse GHG emissions associated with the project were calculated. The results of this analysis are presented in Table 5. Table 5 presents the total project CO_2 emissions estimated for the opening year of the project (2012). The annualized construction emissions are added to the operational emissions to give the total increase in annualized emissions due to the project.

Table 5
Annual Project CO_2 Emissions

Activity	Annual CO_2 Emissions (MT)
Vehicular Emissions	311.4
Natural Gas Combustion	38.4
Landscaping	0.5
Electrical Generation	130.8
Total Annual Emissions	**481.1**
Annualized Construction Emissions	**9.7**
Total Annual Project Emissions	**490.8**
Screening Threshold	**3,000**
Exceed Threshold?	No

3.3 Impacts From Project

The analysis presented above shows that the net increase in GHG emissions due to the project are below the SCAQMD suggested screening level significance threshold of 3,000 metric tons per year. Thus, no project specific mitigation measures are required to construct the project. Additionally, as discussed in Section 1.4.4, UCI implements a climate action plan which is compliant with AB 32 (described in Section 1.4.2,) and policies contained in the University of California Policy on Sustainable Practices to further reduce GHG emissions on the campus. The proposed project would also incorporate project relevant specific policies contained in these plans. Therefore, the project will not considerably contribute to significant cumulative impacts associated with global climate change due to GHG emissions or interfere with California's ability to achieve its GHG reduction goals.

4.0 References

California Energy Commission, *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004*, December 2006.

Edmund G. Brown, Jr., Attorney General, State of California, *Comments on Draft Environmental Impact Report for Coyote Valley Specific Plan*, June 19, 2007.

Michael Hendrix et. al., *Alternative Approaches to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents*, Association of Environmental Professionals, Revised Draft April 27, 2007.

University of New South Wales, Sydney Australia Recycled Organics Unit (ROU), *Life Cycle Inventory and Life Cycle Assessment for Windrow Composting Systems*, 2007

State of California, *Climate Change Portal*, http://www.climatechange.ca.gov/index.html.

United Nations Statistics Division, *Environment Indicators: Greenhouse Gas Emissions*, http://unstats.un.org/unsd/ENVIRONMENT/air_greenhouse_emissions.htm.

United Nations Framework Convention on Climate Change, *National Greenhouse Gas Inventory Data for the Period 1990–2006 and Status of Reporting*, November 17, 2008.

United Nations Framework Convention on Climate Change, *Sixth compilation and synthesis of initial national communications from Parties not included in Annex I to the Convention*, October 25, 2005.

U.S. Environmental Protection Agency, *The U.S. Inventory of Greenhouse Gas Emissions and Sinks: Fast Facts*, April 2007.

U.S. Environmental Protection Agency, *Climate Change*, http://epa.gov/climatechange/index.html.

U.S. Environmental Protection Agency, *AP 42, Fifth Edition Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources*, http://www.epa.gov/ttn/chief/ap42/.

U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2005*, April 15, 2007.

California Air Resource Board, *Climate Change Proposed Scoping Plan*, October 2008.

California Air Resource Board, *Staff Proposal-Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the CEQA*, December 2008.

California Air Resource Board, *Preliminary Draft Staff Proposal- Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the CEQA*, October 24,2008.

SCAQMD, *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans*, December 5, 2008

State of California Department of Water Resources (DWR), *Climate Change Adaptation Strategies for California's Water*, October 2008

Appendix

URBEMIS Output Files

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\MBJ\Application Data\Urbemis\Version9a\Projects\UCI Alumni Center\UCIAlumCent.urb924

Project Name: UCI Alumni Center

Project Location: Orange County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (tons/year unmitigated)	0.10	0.76	0.42	0.00	5.39	0.04	5.43	1.13	0.04	1.16	98.84
2011 TOTALS (tons/year mitigated)	0.10	0.76	0.42	0.00	1.65	0.04	1.69	0.34	0.04	0.38	98.84
Percent Reduction	0.00	0.00	0.00	0.00	69.43	0.00	68.88	69.41	0.00	67.06	0.00
2012 TOTALS (tons/year unmitigated)	0.65	1.77	1.43	0.00	0.00	0.13	0.13	0.00	0.12	0.12	223.04
2012 TOTALS (tons/year mitigated)	0.65	1.77	1.43	0.00	0.00	0.13	0.13	0.00	0.12	0.12	223.04
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.05	0.04	0.31	0.00	0.00	0.00	42.85

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.25	0.31	2.86	0.00	0.60	0.12	343.25

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.30	0.35	3.17	0.00	0.60	0.12	386.10

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

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	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011	0.10	0.76	0.42	0.00	5.39	0.04	5.43	1.13	0.04	1.16	98.84
Fine Grading 08/29/2011-11/04/2011	0.04	0.47	0.19	0.00	5.39	0.02	5.41	1.12	0.02	1.14	64.60
Fine Grading Dust	0.00	0.00	0.00	0.00	5.38	0.00	5.38	1.12	0.00	1.12	0.00
Fine Grading Off Road Diesel	0.02	0.19	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	20.66
Fine Grading On Road Diesel	0.02	0.27	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	42.38
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
Building 11/07/2011-12/28/2012	0.06	0.29	0.23	0.00	0.00	0.02	0.02	0.00	0.02	0.02	34.24
Building Off Road Diesel	0.05	0.28	0.19	0.00	0.00	0.02	0.02	0.00	0.02	0.02	28.44
Building Vendor Trips	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19
Building Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.62
2012	0.65	1.77	1.43	0.00	0.00	0.13	0.13	0.00	0.12	0.12	223.04
Building 11/07/2011-12/28/2012	0.34	1.77	1.43	0.00	0.00	0.13	0.13	0.00	0.12	0.12	222.58
Building Off Road Diesel	0.33	1.73	1.19	0.00	0.00	0.13	0.13	0.00	0.12	0.12	184.85
Building Vendor Trips	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.73
Building Worker Trips	0.01	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.01
Coating 12/17/2012-12/28/2012	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45
Architectural Coating	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45

Phase Assumptions

Phase: Fine Grading 8/29/2011 - 11/4/2011 - Site Grading

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 1

Fugitive Dust Level of Detail: Low

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Onsite Cut/Fill: 45.45 cubic yards/day; Offsite Cut/Fill: 454.55 cubic yards/day

On Road Truck Travel (VMT): 400

Off-Road Equipment:

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 11/7/2011 - 12/28/2012 - Construction

Off-Road Equipment:

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 12/17/2012 - 12/28/2012 - Painting

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

2011	0.10	0.76	0.42	0.00	1.65	0.04	1.69	0.34	0.04	0.38	98.84
Fine Grading 08/29/2011-11/04/2011	0.04	0.47	0.19	0.00	1.65	0.02	1.67	0.34	0.02	0.36	64.60
Fine Grading Dust	0.00	0.00	0.00	0.00	1.64	0.00	1.64	0.34	0.00	0.34	0.00
Fine Grading Off Road Diesel	0.02	0.19	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	20.66
Fine Grading On Road Diesel	0.02	0.27	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	42.38
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
Building 11/07/2011-12/28/2012	0.06	0.29	0.23	0.00	0.00	0.02	0.02	0.00	0.02	0.02	34.24
Building Off Road Diesel	0.05	0.28	0.19	0.00	0.00	0.02	0.02	0.00	0.02	0.02	28.44
Building Vendor Trips	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19
Building Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.62
2012	0.65	1.77	1.43	0.00	0.00	0.13	0.13	0.00	0.12	0.12	223.04
Building 11/07/2011-12/28/2012	0.34	1.77	1.43	0.00	0.00	0.13	0.13	0.00	0.12	0.12	222.58
Building Off Road Diesel	0.33	1.73	1.19	0.00	0.00	0.13	0.13	0.00	0.12	0.12	184.85
Building Vendor Trips	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.73
Building Worker Trips	0.01	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.01
Coating 12/17/2012-12/28/2012	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45
Architectural Coating	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 8/29/2011 - 11/4/2011 - Site Grading

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.00	0.04	0.03	0.00	0.00	0.00	42.34
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.02	0.00	0.28	0.00	0.00	0.00	0.51
Consumer Products	0.00						
Architectural Coatings	0.03						
TOTALS (tons/year, unmitigated)	0.05	0.04	0.31	0.00	0.00	0.00	42.85

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
General office building	0.25	0.31	2.86	0.00	0.60	0.12	343.25
TOTALS (tons/year, unmitigated)	0.25	0.31	2.86	0.00	0.60	0.12	343.25

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2012 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General office building		6.48	1000 sq ft	29.00	187.92	1,912.56
					187.92	1,912.56

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.2	0.6	99.2	0.2
Light Truck < 3750 lbs	7.0	1.4	95.7	2.9
Light Truck 3751-5750 lbs	24.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.2	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	2.9	58.6	41.4	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
General office building				35.0	17.5	47.5

Operational Changes to Defaults

APPENDIX E

TRAFFIC ANALYSIS

AUSTIN-FOUST ASSOCIATES, INC.
TRAFFIC ENGINEERING AND TRANSPORTATION PLANNING

MEMORANDUM

TO: Alex Marks, UCI Campus and Environmental Planning

FROM: Krys Saldivar, Austin-Foust Associates, Inc.

DATE: May 10, 2011

SUBJECT: **UCI ALUMNI CENTER TRAFFIC EVALUATION TECHNICAL MEMORANDUM**

Austin-Foust Associates, Inc. (AFA) has carried out a traffic evaluation for the proposed relocation and expansion of the Alumni Center on the main campus of the University of California at Irvine (UCI). The attached report presents a traffic evaluation that will address any potential traffic impacts of the proposed project both on-campus and off-campus under project buildout conditions.

2223 Wellington Avenue, Suite 300 • Santa Ana, California 92701-3161
Tel: (714) 667-0496 Fax: (714) 667-7952
www.austinfoust.com

UNIVERSITY OF CALIFORNIA, IRVINE
ALUMNI CENTER
Traffic Evaluation

This report presents a traffic evaluation that addresses any potential traffic impact both on-campus and off-campus of the proposed relocation and expansion of the University of California, Irvine (UCI), Alumni Center ("proposed project") that is located on the main campus under project buildout conditions. Any intersection or roadway location that may be adversely impacted by the proposed project will be identified in the report.

The proposed project consists of up to 18,000 assignable square feet (ASF) space on the southeast corner of Mesa Road and Pereira Drive. Direct access to the proposed project site is on Pereira Drive with the majority of traffic utilizing University Drive via Mesa Road to enter/exit the UCI main campus. The proposed project is anticipated to have 20 full-time employees. A coffee shop, an ancillary use, is also planned along with a 250-capacity conference space, staff offices, meeting rooms, workroom and various support areas. The coffee shop will have an exterior patio (approximately 3,500 square feet) that will primarily be used for special functions, and therefore no trip generation has been assigned to it. The operations at the current 2,550 ASF Alumni House will be relocated to the new building however other similar uses will occupy the vacated space. Since the space vacated by the existing use is assumed to eventually be occupied, no discount of trips is made for the current use that is relocating to the proposed project site and trips generated by the proposed project are then added.

The approach to be taken for the traffic evaluation is to first calculate the proposed project trip generation. Then, based on the trip generation results, an analysis of the potential project impacts on the surrounding circulation system will be presented. From this information, conclusions will be made regarding the findings in lieu of a full traffic study. No attempt is being made here to identify impacts in the technical sense since no quantitative analysis is being presented. It should be noted that the development program for the proposed project was assumed in the campus Long Range Development Plan (LRDP). Hence long-range traffic analysis findings associated with the proposed project would be in conformance with those contained in the traffic report prepared for the 2007 LRDP.

The type of use for the proposed project site is in support of university activities. Therefore the use for the proposed project has been categorized as support. The proposed land use and project trip generation are summarized in the table that follows.

PROJECT LAND USE AND TRIP GENERATION SUMMARY

Land Use	Amount /Unit	AM Peak Hour			PM Peak Hour			ADT
		In	Out	Total	In	Out	Total	
Trip Rates								
Support	TSF	.59	0	.592	.22	.70	.92	10.44
Proposed Project								
Support	18 TSF	11	0	11	4	13	17	188

Abbreviations: ADT – average daily trips TSF – thousand square feet

Note: The UCI support trip rates are specific to the Main Campus and were derived during development of the UCI Main Campus Traffic Model (UCIMCTM).

As can be seen from the table, the need for a traffic study cannot be established because the peak hour trips and average daily trips (ADT) are negligible and would not result in significant impacts to nearby intersections and roads. Because the proposed project increment is minimal (less than one percent), the intersection and roadway data presented in the LRDP analysis as well as current traffic conditions are generally unchanged. Hence, the proposed project's impacts would be minor and no mitigation would be necessary. It should be noted that while special events will be held in the conference facility from time to time, the focus of this study is for an average use of the proposed project site on a weekday. Also, as previously noted, the coffee shop is an ancillary use and is not expected to attract outside traffic with clientele likely those already conducting business in the vicinity of the proposed project site.

Traffic due to special events will be subject to the guidelines set forth in UCI's MM Tra-1J measure which states that if a campus construction project or a specific campus event requires an on-campus lane or roadway closure, or could otherwise substantially interfere with campus traffic circulation, the contractor or other responsible party will provide a traffic control plan for review and approval by UCI. The traffic control plan shall ensure that adequate emergency access and egress is maintained and that traffic is allowed to move efficiently and safely in and around the campus. The traffic control plan may include measures such as signage, detours, traffic control staff, a temporary traffic signal, or other appropriate traffic controls. If the interference would occur on a public street, UCI shall apply for all applicable permits from the appropriate jurisdiction.

APPENDIX F

PUBLIC REVIEW/RESPONSE TO COMMENTS

Response to Comments on Draft Initial Study
UCI Alumni Center Project

Public Review

The Draft Initial Study/Mitigated Negative Declaration (IS/MND), together with a Notice of Completion (NOC) and Notice of Intent to Adopt a Mitigated Negative Declaration (NOI) were circulated for a public review and comment period, from July 11, 2011 through August 9, 2011. Copies of the document were sent to the State Clearinghouse, county and local government agencies, UCI faculty and staff, other members of the campus community, and additional interested groups and persons. A copy of the distribution list is provided in this section, along with copies of the notices mentioned above. Public notice of the availability of the Draft IS/MND for review and comment was published in the Orange County Register on July 12, 2011 (copy included in this section).

Comments and Responses

Written comments were submitted by the public agencies identified below. These letters, followed by responses to comments in each, are presented on the pages following the Draft IS/MND distribution list.

Commenting Agency	Correspondence Date	Received at UCI
City of Irvine	July 28, 2011	August 2, 2011
State of California, Department of Toxic Substances Control	August 2, 2011	August 4, 2011
State of California, Governor's Office of Planning and Research	August 9, 2011	August 11, 2011

UNIVERSITY OF CALIFORNIA, IRVINE

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO SANTA BARBARA • SANTA CRUZ

Environmental Planning and Sustainability

750 University Tower
Irvine, CA 92697-2325
(949) 824-6316
(949) 824-1213 Fax

July 8, 2011

State of California
Office of Planning and Research
1400 Tenth Street, Room 222
PO Box 3044
Sacramento, CA 95812- 3044

NOTICE OF COMPLETION – MITIGATED NEGATIVE DECLARATION

Project Title: UCI Alumni Center Project
Project Location: University of California, Irvine
Lead Agency: University of California
County: Orange

In accordance with State CEQA guidelines and University of California Procedures for implementation of the California Environmental Quality Act, an Initial Study for the above named project was prepared. Based on the Initial Study, it has been determined that a Mitigated Negative Declaration is appropriate for this project. Transmitted herewith are 15 CD copies of the proposed Mitigated Negative Declaration/Initial Study and 15 paper copies of the issue summary for this project at the University of California, Irvine.

Implementation of the proposed project would construct an approximately 19,000 to 29,000 gross square foot building on the campus for the University of California, Irvine Alumni Association. The proposed project would be constructed on an approximately 0.25 acre site at the southeast corner of Mesa Road and Pereira Drive. Project implementation would also include demolition of the existing landscaping and walkways where the building would be constructed, earthwork, connection to campus utility and drainage systems, landscape improvements, construction of a small number of visitor and accessible parking spaces, and street and intersection improvements to local campus roadways.

It has been determined that this project will not have a significant effect on the environment, and this letter is intended to serve as the Mitigated Negative Declaration for the project. The enclosed Notice of Completion and Environmental Document Transmittal Form will serve as the Notice of Completion of the environmental document. The project's anticipated environmental effects are discussed in the enclosed Initial Study. Copies of the Initial Study and all documents referenced therein are available for review at the University of California, Irvine's Office of Environmental Planning and Sustainability.

We shall appreciate your prompt acknowledgment and processing of the Negative Declaration/Initial Study. We expect that the State review period will extend from approximately, July 11, 2011 through August 9, 2011.

Sincerely,

Alex Marks, AICP
Associate Planner

Enclosures: 15 Mit .Neg. Decs/IS, 15 Issue Summaries, and one completed transmittal form

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: UCI Alumni Center

Lead Agency: University of California, Irvine — Contact Person: Alex Marks

Mailing Address: 750 University Tower — Phone: 949.824.8692

City: Irvine — Zip: 92697-2325 — County: Orange

Project Location: County: Orange — City/Nearest Community: Irvine

Cross Streets: Mesa Road/Pereira Drive — Zip Code: 92697-2325

Longitude/Latitude (degrees, minutes and seconds): 33 ° 39 '8.59 " N / 117 ° 50 '46.12 " W — Total Acres: 17.4

Assessor's Parcel No.: — Section: — Twp.: — Range: — Base:

Within 2 Miles: State Hwy #: SR #73 — Waterways: San Diego Creek

Airports: — Railways: — Schools: Four IUSD schools

Document Type:

CEQA: ☐ NOP ☐ Early Cons ☐ Neg Dec ☑ Mit Neg Dec ☐ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ☐ Other:

NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI

Other: ☐ Joint Document ☐ Final Document ☐ Other:

Local Action Type:

☐ General Plan Update ☐ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan
☐ Rezone ☐ Prezone ☐ Use Permit ☐ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☑ Other: Design Approval

Development Type:

☐ Residential: Units ____ Acres ____
☐ Office: Sq.ft. ____ Acres ____ Employees ____
☐ Commercial: Sq.ft. ____ Acres ____ Employees ____
☐ Industrial: Sq.ft. ____ Acres ____ Employees ____
☑ Educational: 19,000 to 29,000 square feet
☐ Recreational:
☐ Water Facilities: Type ____ MGD ____
☐ Transportation: Type
☐ Mining: Mineral
☐ Power: Type ____ MW
☐ Waste Treatment: Type ____ MGD
☐ Hazardous Waste: Type
☐ Other:

Project Issues Discussed in Document:

☑ Aesthetic/Visual ☐ Agricultural Land ☑ Air Quality ☑ Archeological/Historical ☑ Biological Resources ☐ Coastal Zone ☑ Drainage/Absorption ☐ Economic/Jobs
☐ Fiscal ☑ Flood Plain/Flooding ☐ Forest Land/Fire Hazard ☑ Geologic/Seismic ☐ Minerals ☑ Noise ☑ Population/Housing Balance ☑ Public Services/Facilities
☑ Recreation/Parks ☑ Schools/Universities ☑ Septic Systems ☑ Sewer Capacity ☑ Soil Erosion/Compaction/Grading ☑ Solid Waste ☑ Toxic/Hazardous ☑ Traffic/Circulation
☑ Vegetation ☑ Water Quality ☑ Water Supply/Groundwater ☑ Wetland/Riparian ☑ Growth Inducement ☑ Land Use ☑ Cumulative Effects ☑ Other: Greenhouse Gas

Present Land Use/Zoning/General Plan Designation:

Project Description: *(please use a separate page if necessary)*

Implementation of the proposed project would construct an approximately 19,000 to 29,000 gross square foot building on the campus for the University of California, Irvine Alumni Association. The proposed Alumni Center would be constructed on an approximately 0.25 acre site at the southeast corner of Mesa Road and Pereira Drive. Project implementation would also include demolition of the existing landscaping and walkways where the building would be constructed, earthwork, connection to campus utility and drainage systems, landscape improvements, construction of a small number of visitor and accessible parking spaces, and street and intersection improvements to local campus roadways.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "**X**".
If you have already sent your document to the agency please denote that with an "**S**".

____	Air Resources Board	____	Office of Emergency Services
____	Boating & Waterways, Department of	____	Office of Historic Preservation
____	California Highway Patrol	____	Office of Public School Construction
X	Caltrans District # 12	X	Parks & Recreation, Department of
X	Caltrans Division of Aeronautics	____	Pesticide Regulation, Department of
____	Caltrans Planning	____	Public Utilities Commission
____	Central Valley Flood Protection Board	X	Regional WQCB # 8
____	Coachella Valley Mtns. Conservancy	X	Resources Agency
X	Coastal Commission	____	S.F. Bay Conservation & Development Comm.
____	Colorado River Board	____	San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
____	Conservation, Department of	____	San Joaquin River Conservancy
____	Corrections, Department of	____	Santa Monica Mtns. Conservancy
____	Delta Protection Commission	____	State Lands Commission
____	Education, Department of	____	SWRCB: Clean Water Grants
____	Energy Commission	____	SWRCB: Water Quality
X	Fish & Game Region # 5	____	SWRCB: Water Rights
____	Food & Agriculture, Department of	____	Tahoe Regional Planning Agency
____	Forestry and Fire Protection, Department of	X	Toxic Substances Control, Department of
____	General Services, Department of	X	Water Resources, Department of
____	Health Services, Department of		
____	Housing & Community Development	____	Other:
____	Integrated Waste Management Board	____	Other:
X	Native American Heritage Commission		

Local Public Review Period (to be filled in by lead agency)

Starting Date July 11, 2011 Ending Date August 9, 2011

Lead Agency (Complete if applicable):

Consulting Firm: _____
Address: _____
City/State/Zip: _____
Contact: _____
Phone: _____

Applicant: University of California, Irvine
Address: 750 University Tower
City/State/Zip: Irvine, CA 92697-2325
Phone: 949.824.8692

Signature of Lead Agency Representative: _____ **Date:** 7.8.11

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

UNIVERSITY OF CALIFORNIA, IRVINE

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO SANTA BARBARA • SANTA CRUZ

Environmental Planning and Sustainability

750 University Tower
Irvine, CA 92697-2325
(949) 824-6316
(949) 824-1213 Fax

July 8, 2011

State of California
Office of Planning and Research
1400 Tenth Street, Room 222
PO Box 3044
Sacramento, CA 95812-3044

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

Project Title: UCI Alumni Center Project
Project Location: University of California, Irvine
Lead Agency: University of California
County: Orange

In accordance with State CEQA guidelines and University of California procedures for implementation of CEQA, an Initial Study for the above named project was prepared. Based on the Initial Study, it has been determined that a Mitigated Negative Declaration is appropriate for this project.

Implementation of the proposed project would construct an approximately 19,000 to 29,000 gross square foot building on the campus for the University of California, Irvine Alumni Association. The proposed Alumni Center would be constructed on an approximately 0.25 acre site at the southeast corner of Mesa Road and Pereira Drive. Project implementation would also include demolition of the existing landscaping and walkways where the building would be constructed, earthwork, connection to campus utility and drainage systems, landscape improvements, construction of a small number of visitor and accessible parking spaces, and street and intersection improvements to local campus roadways.

A Mitigated Negative Declaration has been deemed appropriate for this project and this letter is intended to serve as the Negative Declaration for this project. This proposed Mitigated Negative Declaration is being circulated for public review and comment. The Initial Study and the proposed Mitigated Negative Declaration may be reviewed at: *http://www.ceplanning.uci.edu/current_projects.html*, the address above, and UCI's main library. Background material incorporated into the document is available for review at the University's Environmental Planning and Sustainability Office during normal business hours. We expect the State & public review period will extend from approximately July 11, 2011 through August 9, 2011.

The proposed Mitigated Negative Declaration along with any comments will be considered by the University in conjunction with consideration of the project for approval. The Mitigated Negative Declaration will become Final if adopted by the University.

Sincerely,

Alex Marks, AICP
Associate Planner

Subject: Alumni Center Initial Study/Mitigated Negative Declaration
From: Richard Demerjian <rgdemerj@uci.edu>
Date: Wed, 13 Jul 2011 10:50:00 -0700
To: chancellor@uci.edu, jancona@uci.edu, jcmason@uci.edu, wcbrase@uci.edu, abarbour@uci.edu, dfgeocar@uci.edu, gkrekeme@uci.edu, jchemmin@uci.edu, m.michaels@uci.edu, magomez@uci.edu, pabowler@uci.edu, president@ags.uci.edu, president@asuci.uci.edu, ragrela@uci.edu, reorr@uci.edu, rgladson@uci.edu, taparham@uci.edu, djdooros@uci.edu, asmarks@uci.edu, Mike Arias <mrarias@uci.edu>

Dear Colleagues,

This notice is to inform you that an Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared for the UCI Alumni Center Project in conformance with the California Environmental Quality Act. The IS/MND analyzes the potential environmental effects of this project and is available for public review and comment through August 10, 2011.

Implementation of the proposed project would construct an approximately 19,000 to 29,000 gross square foot building on the campus for the University of California, Irvine Alumni Association. The proposed Alumni Center wou constructed on an approximately 0.25 acre site at the southeast corner of Mesa Road and Pereira Drive. I implementation would also include demolition of the existing landscaping and walkways where the building constructed, earthwork, and connection to campus utility and drainage systems, landscape improvements, construction of a small number of visitor and accessible parking spaces, and street and intersection improvements to local c roadways.

Copies of the IS/MND are available for review during normal business hours at the UCI Office of Environmental Planning and Sustainability in Suite 750 University Tower; at Reserves in the UC Irvine Langson Library; at the University Park Public Library in Irvine at 512 Sandburg Way; and http://www.ceplanning.uci.edu/current_projects.html. Comments must be received by 5:00 pm on August 10, 2011 and can be e-mailed to ceplanning@uci.edu or sent to:

Alex Marks
Associate Planner
Office of Environmental Planning and Sustainability
University of California, Irvine
750 University Tower

Please call me if you have any questions or would like to discuss this document.

Richard

--
Richard Demerjian
Director
Office of Environmental Planning and Sustainability
University of California, Irvine
rgdemerj@uci.edu
Office (949) 824-7058
Mobile (949) 280-9619
Fax (949) 824-1213

.AFFIDAVIT OF PUBLICATION

STATE OF CALIFORNIA,)
) ss.
County of Orange)

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of **The Orange County Register**, a newspaper of general circulation, published in the city of Santa Ana, County of Orange, and which newspaper has been adjudged to be a newspaper of general circulation by the Superior Court of the County of Orange, State of California, under the date of 1/18/52, Case No. A-21046, that the notice, of which the annexed is a true printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

July 12, 2011

"I certify (or declare) under the penalty of perjury under the laws of the State of California that the foregoing is true and correct":

Executed at Santa Ana, Orange County, California, on

Date: July 12, 2011

Julie Rammell
Signature

The Orange County Register
625 N. Grand Ave.
Santa Ana, CA 92701
(714) 796-2209

PROOF OF PUBLICATION

Proof of Publication of

NOTICE OF COMPLETION
AND
NOTICE OF INTENT TO ADOPT
A MITIGATED NEGATIVE DECLARATION
UNIVERSITY OF CALIFORNIA, IRVINE

UCI ALUMNI CENTER PROJECT

The University of California is considering the adoption of an Initial Study/Mitigated Negative Declaration for the approval of the Alumni Center Project at the University of California, Irvine campus. In accordance with the State of California Environmental Quality Act (CEQA) Guidelines and the University of California Procedures for the Implementation of CEQA, an Initial Study for the above-named project was prepared. Based on the Initial Study, it has been determined that a Mitigated Negative Declaration is appropriate for this project. The site does not contain any known hazardous waste materials, as set forth in Government Code Section 65962.5.

Implementation of the proposed project would construct an approximately 19,000 to 29,000 gross square foot building on the campus for the University of California, Irvine Alumni Association. The proposed Alumni Center would be constructed on an approximately 0.25 acre site at the southeast corner of Mesa Road and Pereira Drive. Project implementation would also include demolition of the existing landscaping and walkways where the building would be constructed, earthwork, connection to campus utility and drainage systems, landscape improvements, construction of a small number of visitor and accessible parking spaces, and street and intersection improvements to local campus roadways. The Initial Study is available for review at: http://www.ceplanning.uci.edu/current_projects.html and the following locations:

University of California, Irvine
Main Library, Government Publications Desk
Irvine, California 92697

Orange County Public Library
University Park Branch
4512 Sandburg Way
Irvine, California 92612

Background material that has been incorporated into this document is available for review at the UCI Office of Environmental Planning and Sustainability by appointment (see address below) during regular business hours.

A 30-day public review period will commence on July 12, 2011 and extend through August 10, 2011. Written comments may be submitted to: Alex Marks, AICP, Associate Planner, Office of Environmental Planning and Sustainability, University of California, Irvine, 750 University Tower, Irvine, California 92697-2325. Comments may also be submitted via email to ceplanning@uci.edu. Your response may be sent at the earliest possible date, but no later than 5:00 p.m. on August 10, 2011. If you have any questions regarding the project, please contact (949) 824-8692.

Publish: Orange County Register July 12, 2011 R-1152

ALUMNI CENTER PROJECT

Draft IS/MND 30-day Review Mailing List

State Clearinghouse
Office of Planning & Research
1400 Tenth Street, Room 222
Sacramento, CA 95814

Mr. Bill Jacobs
Community Development Dept.
City of Irvine
P.O. Box 19575
Irvine, CA 92623-9575

Orange County Transportation Auth.
550 S. Main St.
Orange, CA 92868

California Dept. of Fish & Game
4949 Viewridge Ave.
San Diego, CA 92133

CA Dept. of Toxic Substances Control
5796 Corporate Avenue
Cypress, California 90630

Santa Ana Regional Water Quality Control Board
3737 Main St., Suite 500
Riverside, CA 92501-3348

Public Utilities Commission
320 W. 4th Street, Suite 500
Los Angeles, CA 90013

Chancellor Michael Drake

Vice Chancellor Wendell Brase
Administrative & Business Services

Counsel to the Chancellor
Diane Fields Geocaris

Director Richard Orr
Campus Asset Management

Open Space Reserve Committee
C/O Dept. of Ecology & Evolutionary Biology
Prof. Peter Bowler

Dan Dooros
Associate Vice Chancellor,
Student Affairs

Orange County Public Library
University Park Branch
4512 Sandburg Way
Irvine, CA 92612

County of Orange
Planning & Development Services
300 N. Flower Street
Santa Ana, CA 92703

U.S. Army Corps of Engineers
Los Angeles District
300 North Los Angeles Street
Los Angeles, CA 90012

Orange County Fire Authority
P.O. Box 57115
Irvine, CA 92619-7115

Irvine Ranch Water District
15600 Sand Canyon Ave.
Irvine, CA 92618

South Coast Air Quality
21865 E. Copley Dr.
Diamond Bar, CA 91765-4182

Metropolitan Water District
700 N. Alameda St.
Los Angeles, CA 90012

Jorge Ancona
Executive Director - UC Irvine Alumni Association

Thomas A. Parham, Ph.D.
Interim Vice Chancellor, Student Affairs

Academic Senate
Alan Barbour

Interim Assistant Vice Chancellor
Facilities Management
Marc A. Gomez

Associate Vice Chancellor
Design & Construction Services
Rebekah Gladson

Ramona Agrela
Associate Chancellor
Chancellor's Office

Southern California Assoc. of Governments (SCAG)
818 West 7th Street, 12th Fl.
Los Angeles, CA 90017

Irvine Unified School District
5050 Barranca Parkway
Irvine, CA 92604-4698

U.S. Fish & Wildlife Service
Division of Ecological Services
6010 Hidden Valley Rd. #101
Carlsbad, CA 92011

Transportation Corridor Agencies
125 Pacifica
Irvine, CA 92618-3304

California Dept. of Transportation
District 12
3337 Michelson Dr., Suite 380
Irvine, CA 92612-1699

Director Janet Mason
Capital Planning

Vice Chancellor Planning and Budget
Meredith Michaels

Executive Vice Chancellor
Michael Gottfredson
C/O Mr. Michael Arias

Director of Campus Operations
Design & Construction Services
Gary Krekemeyer

Vice Chancellor Research & Graduate Studies
John Hemminger

Ms. Elisabeth Gunther
Office of General Counsel, UCOP
111 Franklin Street, 8th Floor
Oakland, CA 94607

Ms. Alicia Jensen
UC Office of the President
1111 Franklin Street, 6th Floor
Oakland, CA 94607

UCI Main Library
Government Publications
Attn: Ms. Yvonne Wilson
President, AGS

UCI Archives
Main Library
Attn: Michelle Light

President, ASUCI

Community Development www.cityofirvine.org

City of Irvine, One Civic Center Plaza, P.O. Box 19575, Irvine, California 92623-9575 (949) 724-6000

July 28, 2011

Mr. Alexander S. Marks, AICP
University of California, Irvine
Office of Campus & Environmental Planning
750 University Tower
Irvine, CA 92697-2325

Subject: Review of UCI Alumni Center Project Mitigated Negative Declaration

Dear ~~Mr. Marks~~ Alex:

The City of Irvine has reviewed the above referenced project and has the following comment:

1. Confirm the assumption in the traffic analysis that this use is considered "support" with only 11 A.M. and 17 P.M. peak hour trips. The project description states this building includes a planned space for a conference area for up to 250 people, and meeting rooms.

Thank you for the opportunity to review and comment on the Alumni Center project Mitigated Negative Declaration. We would appreciate the opportunity to review any further information regarding this project as the planning process proceeds. If you have any questions, please contact me at (949) 724-6521 or by email at bjacobs@ci.irvine.ca.us.

Sincerely,

BILL JACOBS, AICP
Principal Planner

City of Irvine

As noted in the Draft Initial Study (IS) Project Description (page 6), the proposed project conforms to the site's 2007 LRDP land use designation. Although space will be provided for Alumni gatherings and meetings, the project's principal purpose as indicated in the Project Objectives (page 5) is to accommodate the growing UCI Alumni Association, a campus support function, which has outgrown its Phineas Banning Alumni House. The conference space for up to 250 people would primarily be used for UCI Alumni Association events; the UCI Student Center adjacent East Peltason Drive would continue to be the main venue for conferences held on the campus. Further, events utilizing this space at the Alumni Center would be anticipated to occur primarily on weekends or at times other than the Monday through Friday peak traffic hours.

The traffic evaluation analyzed the project's anticipated trips as they relate to the peak hours of the adjacent street network and not the Alumni Center's peak usage during weekends or after evening peak hours. This analysis, which considers time-periods when most of the project's traffic would be present, would be considered "worst-case" and determines the project's impacts. Additionally, as noted in the Transportation/Traffic section of this IS any impacts related to special events occurring at the Alumni Center would be mitigated by 2007 LRDP FEIR mitigation measure Tra-1J.

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Deborah O. Raphael, Director
5796 Corporate Avenue
Cypress, California 90630

Edmund G. Brown Jr.
Governor

August 2, 2011

Mr. Alex Marks, Associate Planner
Office of Environmental Planning and Sustainability
University of California, Irvine
750 University Tower
Irvine, California 92697

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION FOR THE UCI ALUMNI CENTER PROJECT, (SCH #), ORANGE COUNTY

Dear Mr. Marks:

The Department of Toxic Substances Control (DTSC) has received your submitted draft Initial Study (IS) and a draft Mitigated Negative Declaration (MND) for the above-mentioned project. The following project description is stated in your document: "the proposed Alumni Center would be constructed on an approximately 0.25 acre site at the southeast corner of Mesa Road and Pereira Drive. Implementation of the proposed project would construct an approximately 19,000 to 29,000 gross square foot building on the campus for the UCI Alumni Association. Project implementation would also include demolition of the existing landscaping and walkways. ".

Based on the review of the submitted document DTSC has the following comments:

1) The MND should evaluate whether conditions within the Project area may pose a threat to human health or the environment. Following are the databases of some of the regulatory agencies:

   - National Priorities List (NPL): A list maintained by the United States Environmental Protection Agency (U.S.EPA).

   - Envirostor (formerly CalSites): A Database primarily used by the California Department of Toxic Substances Control, accessible through DTSC's website (see below).

- Resource Conservation and Recovery Information System (RCRIS): A database of RCRA facilities that is maintained by U.S. EPA.

- Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS): A database of CERCLA sites that is maintained by U.S.EPA.

- Solid Waste Information System (SWIS): A database provided by the California Integrated Waste Management Board which consists of both open as well as closed and inactive solid waste disposal facilities and transfer stations.

- GeoTracker: A List that is maintained by Regional Water Quality Control Boards.

- Local Counties and Cities maintain lists for hazardous substances cleanup sites and leaking underground storage tanks.

- The United States Army Corps of Engineers, 911 Wilshire Boulevard, Los Angeles, California, 90017, (213) 452-3908, maintains a list of Formerly Used Defense Sites (FUDS).

2) The MND should identify the mechanism to initiate any required investigation and/or remediation for any site within the proposed Project area that may be contaminated, and the government agency to provide appropriate regulatory oversight. If necessary, DTSC would require an oversight agreement in order to review such documents.

3) Any environmental investigations, sampling and/or remediation for a site should be conducted under a Workplan approved and overseen by a regulatory agency that has jurisdiction to oversee hazardous substance cleanup. The findings of any investigations, including any Phase I or II Environmental Site Assessment Investigations should be summarized in the document. All sampling results in which hazardous substances were found above regulatory standards should be clearly summarized in a table. All closure, certification or remediation approval reports by regulatory agencies should be included in the MND.

4) If buildings, other structures, asphalt or concrete-paved surface areas are being planned to be demolished, an investigation should also be conducted for the presence of other hazardous chemicals, mercury, and asbestos containing materials (ACMs). If other hazardous chemicals, lead-based paints (LPB) or products, mercury or ACMs are identified,

proper precautions should be taken during demolition activities. Additionally, the contaminants should be remediated in compliance with California environmental regulations and policies.

5) Future project construction may require soil excavation or filling in certain areas. Sampling may be required. If soil is contaminated, it must be properly disposed and not simply placed in another location onsite. Land Disposal Restrictions (LDRs) may be applicable to such soils. Also, if the project proposes to import soil to backfill the areas excavated, sampling should be conducted to ensure that the imported soil is free of contamination.

6) Human health and the environment of sensitive receptors should be protected during any construction or demolition activities. If necessary, a health risk assessment overseen and approved by the appropriate government agency should be conducted by a qualified health risk assessor to determine if there are, have been, or will be, any releases of hazardous materials that may pose a risk to human health or the environment.

7) If the site was used for agricultural, livestock or related activities, onsite soils and groundwater might contain pesticides, agricultural chemical, organic waste or other related residue. Proper investigation, and remedial actions, if necessary, should be conducted under the oversight of and approved by a government agency at the site prior to construction of the project.

8) If it is determined that hazardous wastes are, or will be, generated by the proposed operations, the wastes must be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (California Code of Regulations, Title 22, Division 4.5). If it is determined that hazardous wastes will be generated, the facility should also obtain a United States Environmental Protection Agency Identification Number by contacting (800) 618-6942. Certain hazardous waste treatment processes or hazardous materials, handling, storage or uses may require authorization from the local Certified Unified Program Agency (CUPA). Information about the requirement for authorization can be obtained by contacting your local CUPA.

9) DTSC can provide cleanup oversight through an Environmental Oversight Agreement (EOA) for government agencies that are not responsible parties, or a Voluntary Cleanup Agreement (VCA) for private parties. For additional information on the EOA or VCA, please see www.dtsc.ca.gov/SiteCleanup/Brownfields,

or contact Ms. Maryam Tasnif-Abbasi, DTSC's Voluntary Cleanup Coordinator, at (714) 484-5489.

If you have any questions regarding this letter, please contact Rafiq Ahmed, Project Manager, at rahmed@dtsc.ca.gov, or by phone at (714) 484-5491.

Sincerely,

Greg Holmes
Unit Chief
Brownfields and Environmental Restoration Program

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044
state.clearinghouse@opr.ca.gov.

CEQA Tracking Center
Department of Toxic Substances Control
Office of Environmental Planning and Analysis
P.O. Box 806
Sacramento, California 95812
Attn: Nancy Ritter
nritter@dtsc.ca.gov

CEQA # 3269

State of California, Department of Toxic Substances Control

Comments 1-3

As stated in the IS response to checklist item 7.d (page 43), research conducted in conjunction with the UCI 2007 Long Range Development Plan (LRDP) Final Environmental Impact Report (FEIR) determined that there were no known hazardous waste sites in this part of the campus. In addition, UCI reviewed the Department of Toxic Substances Control's EnviroStor database during the preparation of this IS (June 7, 2011) and confirmed the absence of any hazardous waste site in the project vicinity. The closest UCI recorded hazardous materials site, also noted on page 43, is located on the North Campus Corporation Yard, located more than a mile away northeast of the project site and according to the UCI Environmental Health and Safety Department, no other known hazardous material sites exist on the campus.

Comment 4

As stated in the IS response to checklist items 7.a-b (page 42), contractor's working on the campus are responsible for ensuring that hazardous materials and wastes are handled, stored, and disposed of in accordance with all applicable federal, state, and local laws and regulations. As noted in the IS, the LRDP FEIR determined that routine construction control measures would be sufficient to avoid significant impacts and that any hazardous wastes generated by the campus would be removed by licensed transporters for treatment or disposal at licensed waste facilities.

Comment 5

As stated in the IS response to checklist items 7.a-b (page 42), the University's standard construction specifications require that contractors be responsible for identification and proper removal and disposal of any unexpected soil contaminants that might be encountered during grading operations.

Comment 6

Please refer to the previous responses to comments 1 through 4. There is no evidence of site contamination by hazardous substances and wastes, and no impacts involving release of substances that could be harmful to people or the environment are expected. However, as stated in the IS response to checklist items 7.a-b (page 41), in the unlikely event a release of a hazardous material(s) occur, UCI has an Emergency Management Plan, which would ensure that the campus respond appropriately. Additionally, as noted on page 42 in the IS, contractors working on the campus are responsible for ensuring that hazardous materials and waste are handled, stored and disposed of in accordance with all applicable federal, state, and local laws and regulations.

Comment 7

As stated above there is no evidence of any site contamination; however, standard contractor specifications, noted in the IS (page 42), will ensure that in the unexpected event soil and/or water contamination is suspected during site grading, appropriate measures will be immediately taken to properly contain and remove contaminated materials. No further investigations are necessary or

mitigation measures warranted. As noted in the LRDP FEIR (VI page 4.6-2), herbicides are used on campus and may have been applied to existing landscaping on and surrounding the project site; however, such applications would have been infrequent and on an as needed basis.

Comment 8

As stated in the IS Project Description and summarized in the introductory portion of the letter from this author, the proposed project would construct a new building on the UCI campus. The IS notes (page 41) that operation of the project could involve transport, use, or disposal of regulated hazardous materials associated with its use and minor quantities of materials related to landscaping, and general building and site maintenance. However, as further stated in the IS, pursuant to applicable State and federal regulations UCI implements specific programs, practices, and procedures related to potential hazards associated with medical and biological wastes on the campus. Given this, in addition to the policies noted above in response to Comments 4-7 and in response to checklist items 7.a-b (IS pages 41-42) the IS concluded that this project would not result in any significant impacts involving hazardous waste.

Comment 9

Comment noted

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Edmund G. Brown Jr.
Governor

Ken Alex
Director

August 10, 2011

RECEIVED
AUG 12 2011
UCI Campus & Environmental Planning

Alex Marks
University of California, Irvine
750 University Tower
Irvine, CA 92697-2325

Subject: UCI Alumni Center
SCH#: 2011071030

Dear Alex Marks:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on August 9, 2011, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

Document Details Report
State Clearinghouse Data Base

SCH# 2011071030
Project Title UCI Alumni Center
Lead Agency University of California, Irvine

Type MND Mitigated Negative Declaration

Description Implementation of the proposed project would construct an approximately 19,000 to 29,000 gross s.f. building on the campus for the UCI Alumni Association. The proposed Alumni Center would be constructed on an approximately 0.25 acre site at the southeast corner of Mesa Road and Pereira Drive. Project implementation would also include demolition of the existing landscaping and walkways where the building would be constructed, earthwork, connection to campus utility and drainage systems, landscape improvements, construction of a small number of visitor and accessible parking spaces, and street and intersection improvements to local campus roadways.

Lead Agency Contact

Name Alex Marks
Agency University of California, Irvine
Phone 949 824 8692 **Fax**
email
Address 750 University Tower
City Irvine **State** CA **Zip** 92697-2325

Project Location

County Orange
City Irvine
Region
Lat / Long 33° 39' 8.59" N / 117° 50' 46.12" W
Cross Streets Mesa Road/Pereira Drive
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways SR 73
Airports
Railways
Waterways San Diego Creek
Schools Four IUSD
Land Use

Project Issues Aesthetic/Visual; Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Flood Plain/Flooding; Geologic/Seismic; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Septic System; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Growth Inducing; Landuse; Cumulative Effects; Other Issues

Reviewing Agencies Resources Agency; Department of Fish and Game, Region 5; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Caltrans, District 12; Department of General Services; Regional Water Quality Control Board, Region 8; Native American Heritage Commission; Department of Toxic Substances Control

Date Received 07/11/2011 **Start of Review** 07/11/2011 **End of Review** 08/09/2011

Note: Blanks in data fields result from insufficient information provided by lead agency.

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Deborah O. Raphael, Director
5796 Corporate Avenue
Cypress, California 90630

Edmund G. Brown Jr.
Governor

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August 2, 2011

Mr. Alex Marks, Associate Planner
Office of Environmental Planning and Sustainability
University of California, Irvine
750 University Tower
Irvine, California 92697

SCH # 2011071030

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION FOR THE UCI ALUMNI CENTER PROJECT, (SCH #), ORANGE COUNTY

Dear Mr. Marks:

The Department of Toxic Substances Control (DTSC) has received your submitted draft Initial Study (IS) and a draft Mitigated Negative Declaration (MND) for the above-mentioned project. The following project description is stated in your document: "the proposed Alumni Center would be constructed on an approximately 0.25 acre site at the southeast corner of Mesa Road and Pereira Drive. Implementation of the proposed project would construct an approximately 19,000 to 29,000 gross square foot building on the campus for the UCI Alumni Association. Project implementation would also include demolition of the existing landscaping and walkways. ".

Based on the review of the submitted document DTSC has the following comments:

1) The MND should evaluate whether conditions within the Project area may pose a threat to human health or the environment. Following are the databases of some of the regulatory agencies:

   - National Priorities List (NPL): A list maintained by the United States Environmental Protection Agency (U.S.EPA).
   - Envirostor (formerly CalSites): A Database primarily used by the California Department of Toxic Substances Control, accessible through DTSC's website (see below).

- Resource Conservation and Recovery Information System (RCRIS): A database of RCRA facilities that is maintained by U.S. EPA.

- Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS): A database of CERCLA sites that is maintained by U.S.EPA.

- Solid Waste Information System (SWIS): A database provided by the California Integrated Waste Management Board which consists of both open as well as closed and inactive solid waste disposal facilities and transfer stations.

- GeoTracker: A List that is maintained by Regional Water Quality Control Boards.

- Local Counties and Cities maintain lists for hazardous substances cleanup sites and leaking underground storage tanks.

- The United States Army Corps of Engineers, 911 Wilshire Boulevard, Los Angeles, California, 90017, (213) 452-3908, maintains a list of Formerly Used Defense Sites (FUDS).

2) The MND should identify the mechanism to initiate any required investigation and/or remediation for any site within the proposed Project area that may be contaminated, and the government agency to provide appropriate regulatory oversight. If necessary, DTSC would require an oversight agreement in order to review such documents.

3) Any environmental investigations, sampling and/or remediation for a site should be conducted under a Workplan approved and overseen by a regulatory agency that has jurisdiction to oversee hazardous substance cleanup. The findings of any investigations, including any Phase I or II Environmental Site Assessment Investigations should be summarized in the document. All sampling results in which hazardous substances were found above regulatory standards should be clearly summarized in a table. All closure, certification or remediation approval reports by regulatory agencies should be included in the MND.

4) If buildings, other structures, asphalt or concrete-paved surface areas are being planned to be demolished, an investigation should also be conducted for the presence of other hazardous chemicals, mercury, and asbestos containing materials (ACMs). If other hazardous chemicals, lead-based paints (LPB) or products, mercury or ACMs are identified,

proper precautions should be taken during demolition activities. Additionally, the contaminants should be remediated in compliance with California environmental regulations and policies.

5) Future project construction may require soil excavation or filling in certain areas. Sampling may be required. If soil is contaminated, it must be properly disposed and not simply placed in another location onsite. Land Disposal Restrictions (LDRs) may be applicable to such soils. Also, if the project proposes to import soil to backfill the areas excavated, sampling should be conducted to ensure that the imported soil is free of contamination.

6) Human health and the environment of sensitive receptors should be protected during any construction or demolition activities. If necessary, a health risk assessment overseen and approved by the appropriate government agency should be conducted by a qualified health risk assessor to determine if there are, have been, or will be, any releases of hazardous materials that may pose a risk to human health or the environment.

7) If the site was used for agricultural, livestock or related activities, onsite soils and groundwater might contain pesticides, agricultural chemical, organic waste or other related residue. Proper investigation, and remedial actions, if necessary, should be conducted under the oversight of and approved by a government agency at the site prior to construction of the project.

8) If it is determined that hazardous wastes are, or will be, generated by the proposed operations, the wastes must be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (California Code of Regulations, Title 22, Division 4.5). If it is determined that hazardous wastes will be generated, the facility should also obtain a United States Environmental Protection Agency Identification Number by contacting (800) 618-6942. Certain hazardous waste treatment processes or hazardous materials, handling, storage or uses may require authorization from the local Certified Unified Program Agency (CUPA). Information about the requirement for authorization can be obtained by contacting your local CUPA.

9) DTSC can provide cleanup oversight through an Environmental Oversight Agreement (EOA) for government agencies that are not responsible parties, or a Voluntary Cleanup Agreement (VCA) for private parties. For additional information on the EOA or VCA, please see www.dtsc.ca.gov/SiteCleanup/Brownfields,

or contact Ms. Maryam Tasnif-Abbasi, DTSC's Voluntary Cleanup Coordjnator, at (714) 484-5489.

If you have any questions regarding this letter, please contact Rafiq Ahmed, Project Manager, at rahmed@dtsc.ca.gov, or by phone at (714) 484-5491.

Sincerely,

Greg Holmes
Unit Chief
Brownfields and Environmental Restoration Program

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044
state.clearinghouse@opr.ca.gov.

CEQA Tracking Center
Department of Toxic Substances Control
Office of Environmental Planning and Analysis
P.O. Box 806
Sacramento, California 95812
Attn: Nancy Ritter
nritter@dtsc.ca.gov

CEQA # 3269

State of California, Governor's Office of Planning and Research

This correspondence confirms completion of the State Clearinghouse review process for the Draft IS/MND and provides an additional copy of the Department of Toxic Substances Control correspondence, which the agency had already transmitted to UCI directly; therefore, no response beyond that provided above is necessary. No other state agencies submitted comments through the Clearinghouse.

APPENDIX G

MITIGATION AND MONITORING PROGRAM

ALUMNI CENTER PROJECT

MITIGATION MONITORING AND REPORTING PROGRAM

	Mitigation Measure	Responsible Party	Mitigation Timing	Monitoring and Reporting Procedure
Aesthetics				
Aes-2A	Prior to project design approval for future projects that implement the 2007 LRDP, UCI shall ensure that the projects include design features to minimize glare impacts. These design features shall include use of non-reflective exterior surfaces and low-reflectance glass (e.g., double or triple glazing glass, high technology glass, low-E glass, or equivalent materials with low reflectivity) on all project surfaces that could produce glare.	CEP	Prior to project design approval[(1)]	
Aes-2B	Prior to approval of construction documents for future projects that implement the 2007 LRDP, UCI shall approve an exterior lighting plan for each project. In accordance with *UCI's Campus Standards and Design Criteria* for outdoor lighting, the plan shall include, but not be limited to, the following design features: i. Full-cutoff lighting fixtures to direct lighting to the specific location intended for illumination (e.g., roads, walkways, or recreation fields) and to minimize stray light spillover into adjacent residential areas, sensitive biological habitat, and other light-sensitive receptors; ii. Appropriate intensity of lighting to provide campus safety and security while minimizing light pollution and energy consumption; and iii. Shielding of direct lighting within parking areas, parking structures, or roadways away from adjacent residential areas, sensitive biological habitat, and other light-sensitive receptors through site configuration, grading, lighting design, or barriers such as earthen berms, walls, or landscaping.	CEP	During design development	CEP to confirm and document policy and guideline compliance
Air Quality				
Air-2A	During project level environmental review of future projects that implement the 2007 LRDP and that could result in a significant air quality impact from construction emissions, UCI shall retain a qualified air quality specialist to prepare an air quality assessment of the anticipated project-related construction emissions. The assessment shall quantify the project's estimated construction emissions with and without implementation of applicable Best Management Practices (BMPs) listed in mitigation measure Air-2B and compare them with established SCAQMD significance thresholds. In addition, the air quality assessment shall include analysis of temporal phasing as a means of reducing construction emissions. If the estimated construction emissions are under SCAQMD's significance thresholds or if mitigation measure Air-2B would reduce emissions to below established thresholds, then the project's direct impact to air quality would be less than significant and no additional mitigation would be required. If the project's construction emissions would exceed established thresholds with implementation of applicable BMPs listed in mitigation measure Air-2B, and no additional mitigation to reduce the emissions below the threshold is feasible, then the project's direct impact to air quality would remain significant following mitigation.	CEP	During environmental review	CEP to review and approve air quality assessment
Air-2B	Prior to initiating on-site construction for future projects that implement the 2007 LRDP, UCI shall ensure that the project construction contract includes a construction emissions mitigation plan, including measures compliant with SCAQMD Rule 403 (Fugitive Dust) to be implemented and supervised by the on-site	D&CS	Prior to commencement of construction	D&CS to develop and implement plan

Mitigation Measure	Responsible Party	Mitigation Timing	Monitoring and Reporting Procedure
construction supervisor, which shall include, but not be limited to, the following Best Management Practices (BMPs):		activities and during construction	CEP to confirm and monitor
i. During grading and site preparation activities, exposed soil areas shall be stabilized via frequent watering, non-toxic chemical stabilization, or equivalent measures at a rate to be determined by the on-site construction supervisor.			
ii. During windy days when fugitive dust can be observed leaving the construction site, additional applications of water shall be required at a rate to be determined by the on-site construction supervisor.			
iii. Disturbed areas designated for landscaping shall be prepared as soon as possible after completion of construction activities.			
iv. Areas of the construction site that will remain inactive for three months or longer following clearing, grubbing and/or grading shall receive appropriate BMP treatments (e.g., revegetation, mulching, covering with tarps, etc.) to prevent fugitive dust generation.			
v. All exposed soil or material stockpiles that will not be used within 3 days shall be enclosed, covered, or watered twice daily, or shall be stabilized with approved non-toxic chemical soil binders at a rate to be determined by the on-site construction supervisor.			
vi. Unpaved access roads shall be stabilized via frequent watering, non-toxic chemical stabilization, temporary paving, or equivalent measures at a rate to be determined by the on-site construction supervisor.			
vii. Trucks transporting materials to and from the site shall allow for at least two feet of freeboard (i.e., minimum vertical distance between the top of the load and the top of the trailer). Alternatively, trucks transporting materials shall be covered.			
viii. Speed limit signs at 15 mph or less shall be installed on all unpaved roads within construction sites.			
ix. Where visible soil material is tracked onto adjacent public paved roads, the paved roads shall be swept and debris shall be returned to the construction site or transported off site for disposal.			
x. Wheel washers, dirt knock-off grates/mats, or equivalent measures shall be installed within the construction site where vehicles exit unpaved roads onto paved roads.			
xi. Diesel powered construction equipment shall be maintained in accordance with manufacturer's requirements, and shall be retrofitted with diesel particulate filters where available and practicable.			
xii. Heavy duty diesel trucks and gasoline powered equipment shall be turned off if idling is anticipated to last for more than 5 minutes.			
xiii. Where feasible, the construction contractor shall use alternatively fueled construction equipment, such as electric or natural gas-powered equipment or biofuel.			
xiv. Heavy construction equipment shall use low NO_x diesel fuel to the extent that it is readily available at the time of construction.			
xv. To the extent feasible, construction activities shall rely on the campus's existing electricity infrastructure rather than electrical generators powered by internal combustion engines.			

	Mitigation Measure	Responsible Party	Mitigation Timing	Monitoring and Reporting Procedure
	xvi. The construction contractor shall develop a construction traffic management plan that includes the following: • Scheduling heavy-duty truck deliveries to avoid peak traffic periods • Consolidating truck deliveries			
	xvii. Where possible, the construction contractor shall provide a lunch shuttle or on-site lunch service for construction workers.			
	xviii. The construction contractor shall, to the extent possible, use pre-coated architectural materials that do not require painting. Water-based or low VOC coatings shall be used that are compliant with SCAQMD Rule 1113. Spray equipment with high transfer efficiency, such as the high volume-low pressure spray method, or manual coatings application shall be used to reduce VOC emissions to the extent possible.			
	xix. Project constructions plans and specifications will include a requirement to define and implement a work program that would limit the emissions of reactive organic gases (ROG's) during the application of architectural coatings to the extent necessary to keep total daily ROG's for each project to below 75 pounds per day, or the current SCAQMD threshold, throughout that period of construction activity to the extent feasible. The specific program may include any combination of restrictions on the types of paints and coatings, application methods, and the amount of surface area coated as determined by the contractor.			
	xx. The construction contractor shall maintain signage along the construction perimeter with the name and telephone number of the individual in charge of implementing the construction emissions mitigation plan, and with the telephone number of the SCAQMD's complaint line. The contractor's representative shall maintain a log of public complaints and corrective actions taken to resolve complaints.			
Cultural Resources				
Cul-1A	During preparation of the Initial Study for future projects that implement the 2007 LRDP and are located on sites containing recorded archaeological resources, UCI shall retain a qualified archaeologist to define and survey the area of potential effects (APE) on the project site. The APE shall be based on the extent of ground disturbance and site modification anticipated for the project including an appropriate buffer where specific project boundaries have yet to be established. During the course of project planning, any recorded archaeological sites within the project APE shall be avoided to the extent feasible. If such sites cannot be avoided through project modifications or redesign, then the archeologist shall evaluate all archaeological resources observed within the project APE for significance in accordance with CEQA Guidelines Section 15064.5(c). This evaluation shall also determine the extent of the archaeological resource, if not already established. If an archaeological resource within the project APE is determined to be significant, then mitigation measure Cul-1B shall be implemented.	CEP	Prior to project design approval[(1)]	CEP to confirm completion of assessment in environmental analysis
Cul-1B	Prior to land clearing, grading, or similar land development activities for future projects that implement the 2007 LRDP and would impact a significant archaeological resource as determined by mitigation measure Cul-1A, a qualified archaeologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures:	CEP	Prior to and during construction	CEP to confirm implementation of plan

	Mitigation Measure	Responsible Party	Mitigation Timing	Monitoring and Reporting Procedure
	1. Perform appropriate technical analyses; 2. File any resulting reports with the South Coastal Information Center; and 3. Provide the recovered materials to an appropriate repository for curation.			
Cul-1C	Prior to land clearing, grading, or similar land development activities for future projects that implement the 2007 LRDP in areas of identified archaeological sensitivity, UCI shall retain a qualified archaeologist (and, if necessary, a culturally-affiliated Native American) to monitor these activities. In the event of an unexpected archeological discovery during grading, the on-site construction supervisor shall be notified and shall redirect work away from the location of the archaeological find. A qualified archaeologist shall oversee the evaluation and recovery of archaeological resources, in accordance with the procedures below, after which the on-site construction supervisor shall be notified and shall direct work to continue in the location of the archaeological find. A record of monitoring activity shall be submitted to UCI each month and at the end of monitoring. If the archaeological discovery is determined to be significant, the archaeologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures: i. Perform appropriate technical analyses; ii. File any resulting reports with the South Coastal Information Center; and iii. Provide the recovered materials to an appropriate repository for curation, in consultation with a culturally-affiliated Native American.	D&CS / CEP	During construction	On-site construction supervisor to notify CEP who will stop/direct work
Cul-4A	Prior to grading or excavation for future projects that implement the 2007 LRDP and would excavate sedimentary rock material other than topsoil, UCI shall retain a qualified paleontologist to monitor these activities. In the event fossils are discovered during grading, the on-site construction supervisor shall be notified and shall redirect work away from the location of the discovery. The recommendations of the paleontologist shall be implemented with respect to the evaluation and recovery of fossils, in accordance with mitigation measures Cul-4B and Cul-4C, after which the on-site construction supervisor shall be notified and shall direct work to continue in the location of the fossil discovery. A record of monitoring activity shall be submitted to UCI each month and at the end of monitoring.	D&CS / CEP	During construction and at time of find	Qualified consultant to notify CEP and D&CS who will stop/direct work
Cul-4B	If the fossils are determined to be significant, then mitigation measure Cul-4C shall be implemented.	CEP	At time of find	CEP to retain documentation that procedures were followed
Cul-4C	For significant fossils as determined by mitigation measure Cul-4B, the paleontologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures: i. The paleontologist shall ensure that all significant fossils collected are cleaned, identified, catalogued, and permanently curated with an appropriate institution with a research interest in the materials (which may include UCI); ii. The paleontologist shall ensure that specialty studies are completed, as appropriate, for any significant fossil collected; and	CEP	When resource determined to be significant	CEP to retain documentation that procedures were followed

	Mitigation Measure	Responsible Party	Mitigation Timing	Monitoring and Reporting Procedure
	iii. The paleontologist shall ensure that curation of fossils are completed in consultation with UCI. A letter of acceptance from the curation institution shall be submitted to UCI.			
Hazards and Hazardous Materials				
Haz-6A	Prior to initiating on-site construction for future projects that implement the 2007 LRDP and would involve a lane or roadway closure, the construction contractor and/or UCI Design and Construction Services shall notify the UCI Fire Marshal. If determined necessary by the UCI Fire Marshal, local emergency services shall be notified of the lane or roadway closure by the Fire Marshal.	D&CS/PTS	Prior to construction	D&CS to record Fire Marshal notification and notify CEP
Noise				
Noi-2A	Prior to initiating on-site construction for future projects that implement the 2007 LRDP, UCI shall approve contractor specifications that include measures to reduce construction/demolition noise to the maximum extent feasible. These measures shall include, but are not limited to, the following:	D&CS / CEP	Prior to construction	D&CS to confirm incorporation in construction documents
	i. Noise-generating construction activities occurring Monday through Friday shall be limited to the hours of 7:00 am to 7:00 pm, except during summer, winter, or spring break at which construction may occur at the times approved by UCI.			CEP notification
	ii. Noise-generating construction activities occurring on weekends in the vicinity of (can be heard from) off-campus land uses shall be limited to the hours of 9:00 am to 6:00 pm on Saturdays, with no construction occurring on Sundays or holidays.			
	iii. Noise-generating construction activities occurring on weekends in the vicinity of (can be heard from) on-campus residential housing shall be limited to the hours of 9:00 am to 6:00 pm on Saturdays, with no construction on Sundays or holidays. However, as determined by UCI, if on-campus residential housing is unoccupied (during summer, winter, or spring break, for example), or would otherwise be unaffected by construction noise, construction may occur at any time.			
	iv. Construction equipment shall be properly outfitted and maintained with manufacturer recommended noise-reduction devices to minimize construction-generated noise.			
	v. Stationary construction noise sources such as generators, pumps or compressors shall be located at least 100 feet from noise-sensitive land uses (i.e., campus housing, classrooms, libraries, and clinical facilities), as feasible.			
	vi. Laydown and construction vehicle staging areas shall be located at least 100 feet from noise-sensitive land uses (i.e., campus housing, classrooms, libraries, and clinical facilities), as feasible.			
	vii. All neighboring land uses that would be subject to construction noise shall be informed at least two weeks prior to the start of each construction project, except in an emergency situation.			
	viii. Loud construction activity such as jackhammering, concrete sawing, asphalt removal, pile driving, and large-scale grading operations occurring within 600 feet of a residence or an academic building shall not be scheduled during any finals week of classes. A finals schedule shall be provided to the construction contractor.			

	Mitigation Measure	Responsible Party	Mitigation Timing	Monitoring and Reporting Procedure
Traffic/Transportation				
Tra-1J	If a campus construction project or a specific campus event requires an on-campus lane or roadway closure, or could otherwise substantially interfere with campus traffic circulation, the contractor or other responsible party will provide a traffic control plan for review and approval by UCI. The traffic control plan shall ensure that adequate emergency access and egress is maintained and that traffic is allowed to move efficiently and safely in and around the campus. The traffic control plan may include measures such as signage, detours, traffic control staff, a temporary traffic signal, or other appropriate traffic controls. If the interference would occur on a public street, UCI shall apply for all applicable permits from the appropriate jurisdiction.	D&CS /CEP/PTS	Prior to construction	D&CS to incorporate in construction documents and provide to CEP and PTS CEP to confirm review

CEP = Campus and Environmental Planning
D&CS = Design and Construction Services
EH&S = Environmental Health and Safety
PTS = Parking and Transportation Services

(1) "Design approval" is the approval of project design by the Regents (or their delegates, per Regents policy).