INITIAL STUDY

School of Business Unit 2 Project

University of California, Irvine
Office of Environmental Planning and Sustainability

January 2012

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EXHIBITS

TABLES

PROJECT DESCRIPTION

1. Description of Project

The proposed project would construct an approximately 78,250 gross square foot (gsf) building on the University of California, Irvine (UCI) campus. The four to six floor School of Business Building Unit 2 (SB2) would provide approximately 47,000 assignable square feet (asf) of space for the UCI Paul Merage School of Business (SB).

SB2 will serve existing SB programs by addressing current space shortages for existing programs, providing improved space to meet the program and technical requirements for state-of-the art business education, accommodating anticipated program growth, and centralizing School of Business programs in one geographic location by constructing SB2 adjacent to the existing School of Business Building Unit 1 (SB1). The proposed building would consist of the following components: academic and support staff offices, an auditorium, food service facilities, and computing and classroom support, instructional, and research and scholarly activity spaces. The SB2 project would include full time undergraduate and graduate students, part time fully employed graduate students (students not on campus on a daily basis and generally during off-peak hours), and faculty and staff. The following table provides the overall population projections for the SB and the estimated growth that would result from implementation of the SB2 project.

Table 1 -School of Business Enrollment and Population Projections

	2009-10 Population	2014-15 Population Served by SB2 Project	2014-15 Population (total w/ project)	Long Range Population (2025)
Undergraduate	586	149	735	922
Graduate FTE* (Full Time)	304	26	330	330
Graduate FTE (Part Time)	632	39	671	671
Faculty FTE	50	17	67	82
Staff FTE	110	5	115	125

* Full Time Equivalent

The SB2 Building will be constructed on an approximately one acre infill site within the UCI Academic Core's Social Sciences Quad, located between the existing SB1 Building, Social and Behavioral Sciences Building, Social Sciences Plaza Building, and the Social Sciences Parking Structure/Multi-Purpose Academic and Administrative Building. The site is currently developed with site paving, lighting, ornamental landscaping, and utility infrastructure, which would be removed in order to redevelop the site for SB2. A common outdoor courtyard will link the SB1 and SB2 buildings.

Vehicular access to the project site, including during construction, would occur via Pereira Drive. Parking for SB2 faculty, staff, and students will be provided in Social Sciences Parking Structure, Parking Lot 1, and other nearby campus parking facilities, which are accessed via Pereira Drive, East Peltason Drive, West Peltason Drive, and Campus Drive. Site improvements will include bike and pedestrian trail connections to the existing campus trail network in support of campus sustainability objectives. Exhibit 1 (page 7) illustrates the proposed project's site boundary, vehicle access, and parking.

Project implementation will include site development and building construction. Site development will involve demolition of the existing site improvements, earthwork, off-site and on-site utility improvements, service access, and landscaping. The exterior finishes of the SB2 would be consistent with campus design standards and compatible with adjacent buildings in the Social Sciences Quad. Exterior materials would be constructed of non-reflecting and non-glare producing materials and may include concrete, stone, or brick masonry and low-reflectance glass. Site lighting will include pole and building mounted area lighting consistent with UCI lighting standards and be non-reflecting and designed, shielded and/oriented to prevent light spillage off site. Exhibit 2 (page 8) provides a conceptual elevation of the proposed building. The design/build project team selected by the University to implement the project will develop a final project design consistent with this conceptual design.

Utility infrastructure sufficient to serve the proposed project is available in the site vicinity and would be extended to serve the project site. The building site's existing stormwater drainage patterns would be maintained with site stormwater collected on site and conveyed to existing storm drain facilities located north of the project site. 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 SB2 project would be consistent with the University of California (UC) Policy on Sustainable Practices. 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, 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 required minimum energy performance. Project elements that support alternative transportation including bicycle use will be integrated into the project design.

2. Project Phasing/Construction Schedule and Specifications

Construction of the project would commence in approximately May 2012 and be complete in approximately July 2014. The anticipated schedule includes an initial demolition phase of one month, one month of grading, and 25 months of construction. The overall grading program for the building would result in a general balance of cut and fill, and entail less than 10,000 cubic yards of grading. Approximately 0.75 acres would be provided in general proximity to the project site for work crew parking and construction staging. Pile driving is not anticipated to be required to construct the project. The project's construction documents and specifications would include the following requirements:

1. Compliance with state and federal regulations pertaining to construction activities which occur during the bird nesting season.
2. Monitoring of land clearing and grading activities associated with the project by a qualified archaeologist to ensure the proper identification and recovery of any archaeological materials previously undetected on the campus.

3. Monitoring of excavation of sedimentary rock associated with the project by a qualified paleontologist to properly identify and recover any fossils discovered during project construction.
4. If a temporary lane or road closure is necessary at any time during construction the contractor and/or UCI Design and Construction Services would notify the UCI Fire Marshal in advance to ensure coordination of local emergency services that might be affected. If such a lane or roadway closure is necessary, or could interfere with campus traffic circulation, the contractor would also be required to provide UCI with a traffic control plan.
5. Prior to commencing construction complete a drainage study and incorporate its design features and recommendations into the project's plans, which would be consistent with UCI's Storm Water Management Program and at a minimum include site design that controls runoff discharge volumes and durations where applicable and feasible, to maintain or reduce the peak runoff for the 10-year, 6-hour storm event in the post-development condition compared to the pre-development condition, or as defined by current water quality regulatory requirements, and measures that control runoff discharge volumes and durations where applicable and feasible, on manufactured slopes and newly-graded drainage channels.
6. A construction emissions reduction plan compliant with the Southern California Air Quality Management District's (SCAQMD) Rule 403 (Fugitive Dust) and includes the following additional BMPs to minimize fugitive dust, construction traffic, and particulate matter release:

    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 consolidates truck deliveries and schedules them to avoid peak traffic periods.

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.

7. A construction/demolition noise minimization plan which includes 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.

3. 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 Exhibit 3, Regional Location Map). Pereira Drive borders the project site to north and existing buildings in the Social Sciences Quad border the building to the east south, and west (SB1, Social Sciences Plaza, and Social and Behavioral Sciences buildings respectively). The existing Social Sciences Parking Structure and Parking Lot 1 are located north of the project site across Pereira Drive. An aerial view of the project site boundaries and adjacent land uses is shown in Exhibit 4 (page 10).

As stated above, the building will be constructed on a site currently which is developed and in an urbanized area of the UCI campus. There are no rock outcroppings, water bodies, or other distinctive natural features on the proposed SB2 building site. Ground level photographs of the project site and surroundings (taken in December 2011) are presented in Exhibit 6 (page 12); a map showing photo locations is provided as Exhibit 5 (page 11).

4. Consistency with the LRDP

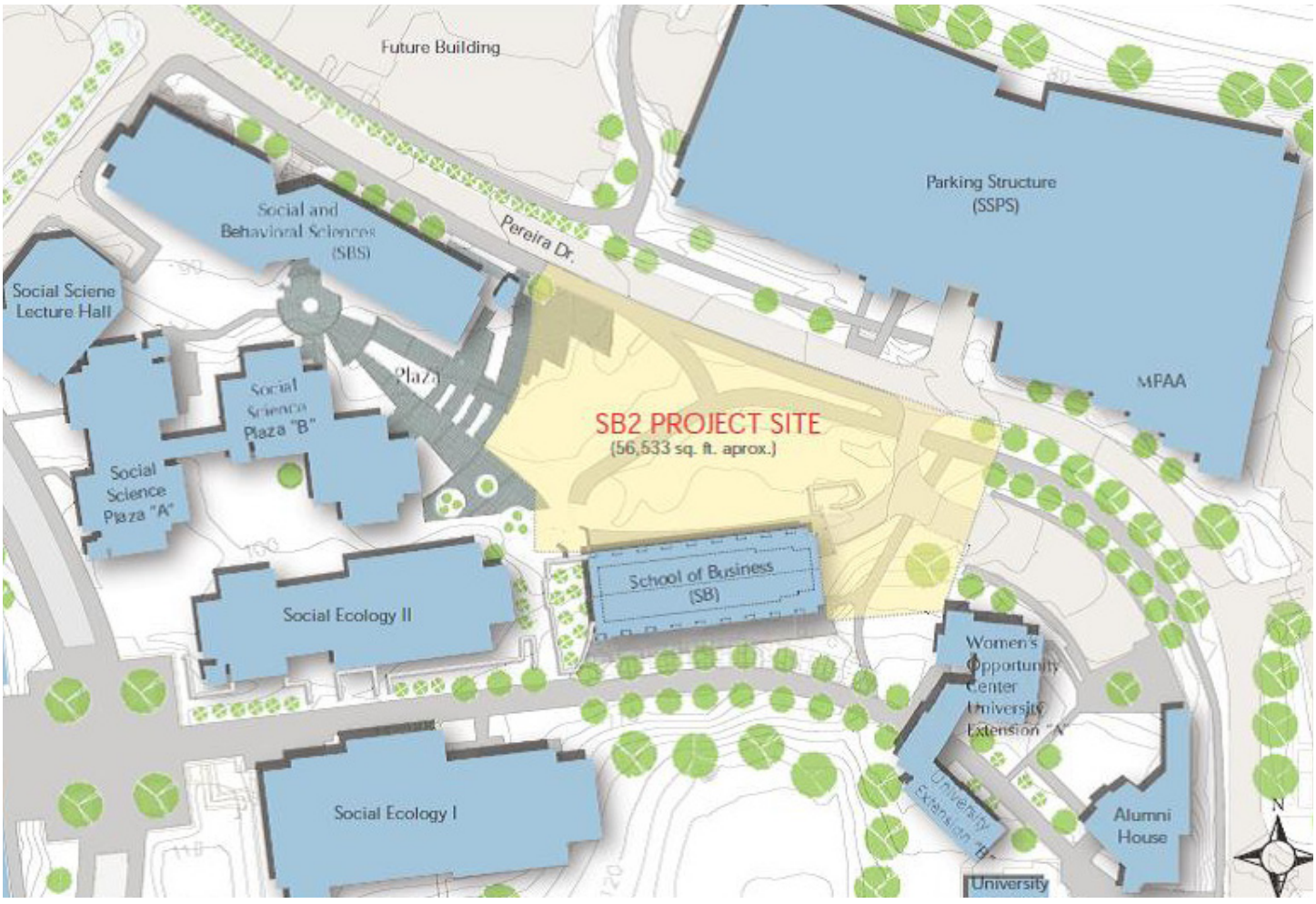
The project site, located within the Central Academic Core, is designated in the 2007 LRDP as Academic and Support. Permitted uses within this land use designation include academic facilities therefore the project is consistent with the LRDP (2007 LRDP pages 61 and 67). Additionally, the anticipated growth in SB faculty, staff, and students whom would be accommodated within the proposed project is consistent with and would not exceed the LRDP's projections; especially, given that both populations would primarily be generated by reductions in enrollment within other campus programs and reallocation of positions as existing faculty retire or leave the campus.

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

<u>University of California</u>

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 FY 2011-2012.



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PLANNING
ARCHITECTURE
ENGINEERING

Exhibit 1
Project Site Boundary

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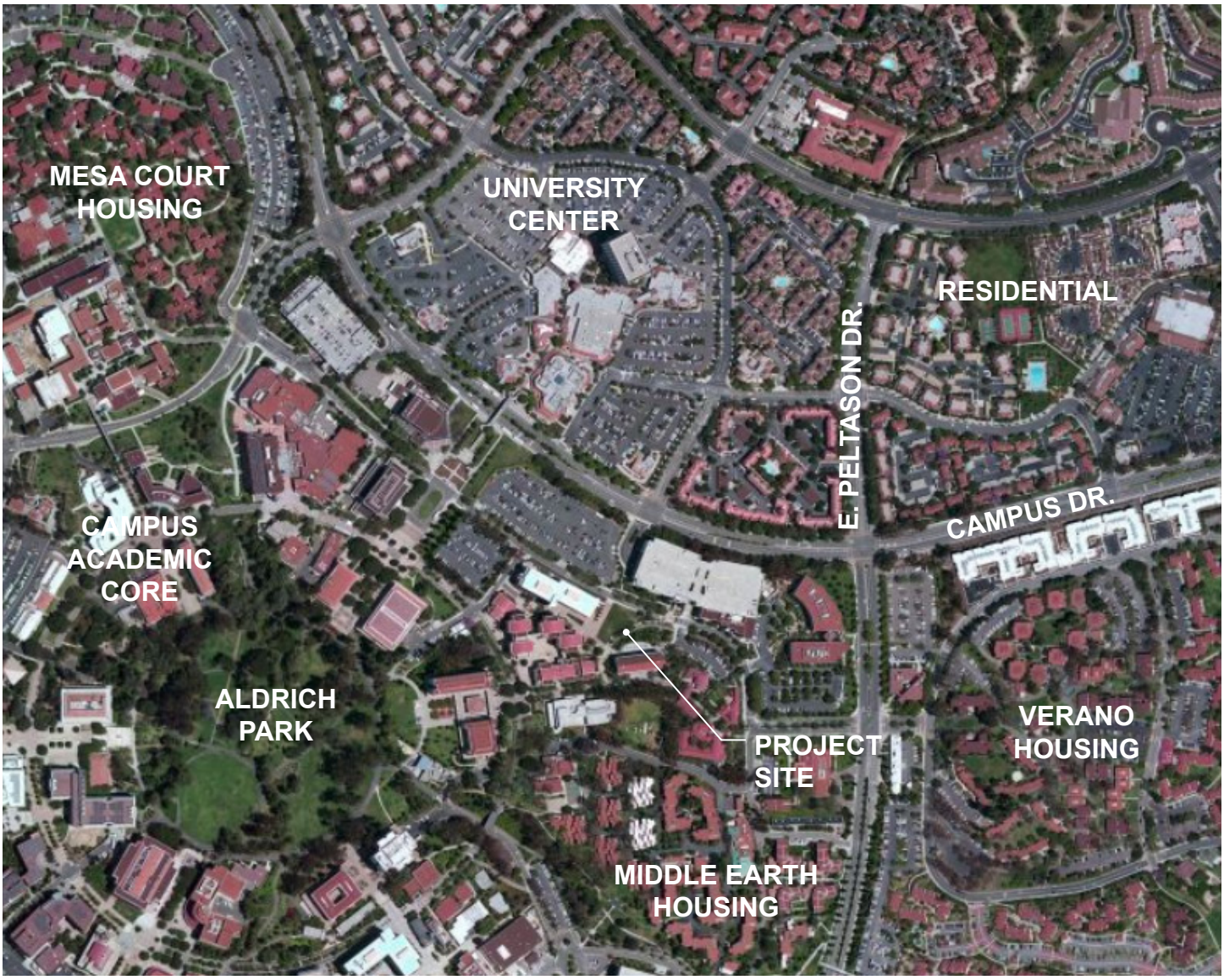
ARCHITECTURE
ENGINEERING

Exhibit 2
Conceptual Elevation

Source: UCI GIS

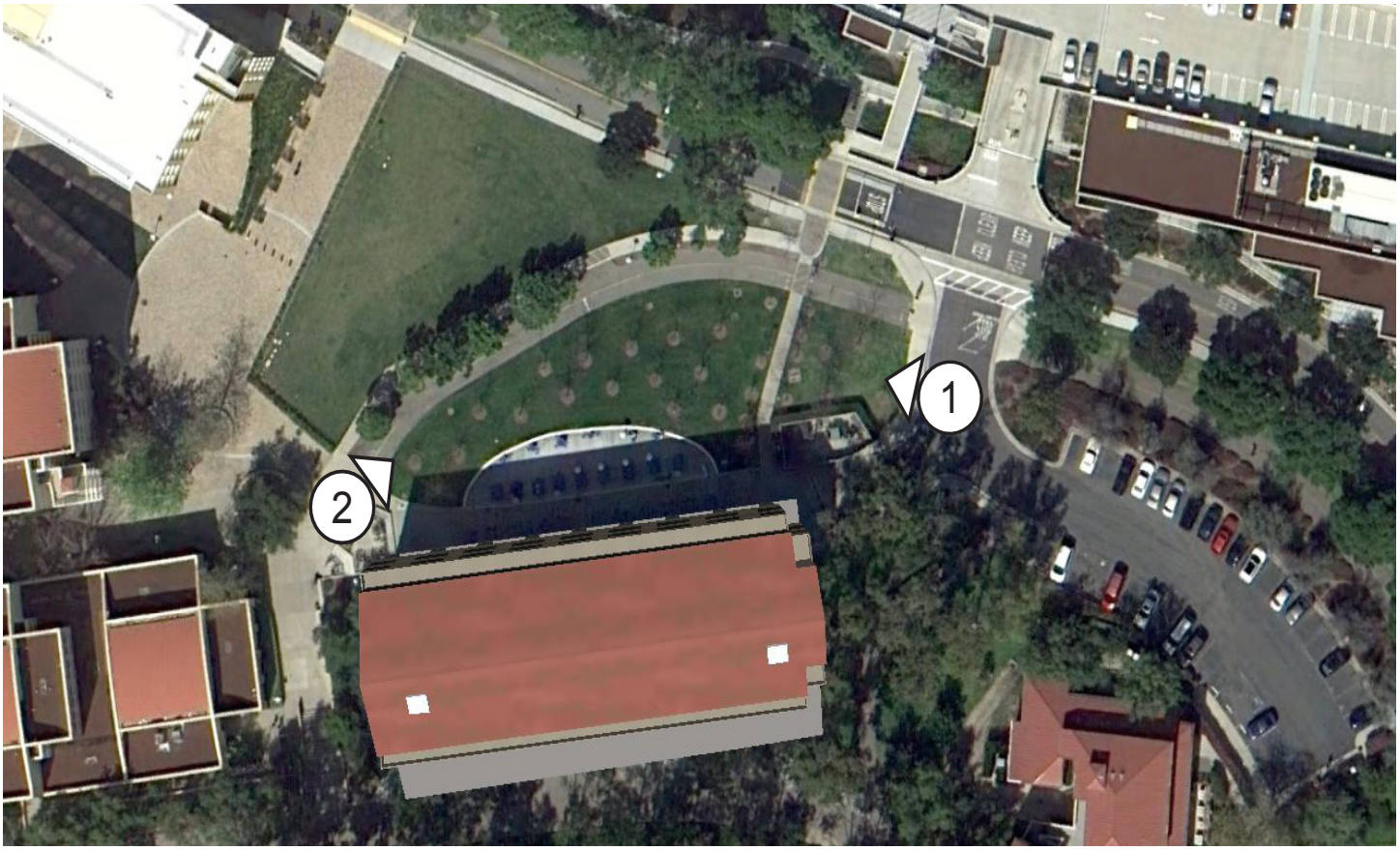
Exhibit 3
Regional Location Map



Source: Google Earth Images

N.T.S.

Exhibit 4
Project Site and Adjacent Land Uses



N.T.S.

Exhibit 5
Site Photographs Location Key

View 1

View 2

Exhibit 6
Site Photographs, Views 1-2

DETERMINATION

On the basis of the SB2 project description and characteristics, and the initial study that follows:

✓	I find that the proposed project meets the criteria for the Section 15332 In-Fill Development Project Class 32 exemption and is CATEGORICALLY EXEMPT from the provisions of CEQA.
	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

1-5-12

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 in a developed condition. 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 and not located near a State scenic highway.

Discussion of Potential Project Impacts

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. Thus, as the LRDP FEIR did not identify any scenic resources within a state scenic highway on the campus 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: No Impact

Relevant Elements of Project

As stated in the Project Description, the project site is located within the Social Sciences Quad in the UCI Academic Core, a developed and urbanized portion of the UCI campus.

Discussion of Potential Project Impacts

The LRDP FEIR determined that the viewshed of the Academic Core is fully developed and that implementation of the LRDP uses in this area will not result in significant impacts to visual quality of the area (LRDP FEIR Vol 1 page 4.1-7). The FEIR concluded that implementation of the 2007 LRDP will have a less than significant impact on the visual character of the Academic Core. Additionally, the project design would be consistent with campus design standards and compatible with adjacent campus developments.

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: Less than Significant

Relevant Elements of Project

The project site is in a developed condition and includes existing sources of light. Nearby light sources, include adjacent buildings, street and parking, and exterior lighting in the Social Sciences Quad. As stated in the Project Description, lighting would be consistent with UCI standards, non-reflective, and designed, shielded and/oriented to prevent light spillage off site and the building's surfaces would be constructed of non-reflective and glare producing materials.

Discussion of Potential Project Impacts

As the project's lighting and exterior surfaces would be consistent with UCI standards and incorporate design features to prevent off-site light spillage and prevent glare, less than significant impacts with respect to light or glare.

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

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: Less Than Significant

Relevant Elements of Project

The SB2 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).

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 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

2.b) Air Quality Standards: Less Than Significant

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 would include: a demolition phase of one month, a site grading phase of approximately one month, and a construction phase of approximately 25 months; a construction emissions mitigation plan compliant with Southern California Air Quality Management District (SCAQMD) Rule 403 (Fugitive Dust), and other BMPs to minimize fugitive dust, construction traffic management plan, and particulate matter.

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).

An air quality assessment (see Appendix A) was prepared to assess the project's anticipated construction and operation related emissions. This analysis is derived from analysis prepared for a like facility (UCI GHEI Building) with the same air quality setting, construction, and operations as the SB2 Project. SB2 has the same general square footage, building height, footprint, site size, earthwork quantities, construction materials and means, and construction schedule for each phase of construction as the GHEI. The assessment was prepared utilizing software recommended by the California Air Resources Board (URBEMIS 2007 v. 9.2.4). As indicated by the air quality assessment, with implementation of the

Southern California Air Quality Management District (SCAQMD) Rule 403 and the BMPs noted above, the project would result in less than significant short term construction related impacts (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 37).

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

2.c) Cumulatively Considerable Net Increase of Any Criteria Pollutant: Less Than Significant

Relevant Elements of Project

As noted in the 2007 LRDP FEIR (Vol I page 4.2-2 and Appendix A page 11), the air basin in which UCI is located, including the project site, is currently in non-attainment status with respect to California standards for ozone (O_3) and visibility-reducing particulates (PM_{10}), and non-attainment with respect to federal standards for ozone, carbon monoxide (CO), PM_{10} and $PM_{2.5}$. The FEIR determined that implementation of future LRDP projects that exceed the SCAQMD thresholds would result in a cumulatively considerable contribution to this significant cumulative air quality impact (LRDP FEIR Vol I page 4.2-28).

Discussion of Potential Project Impacts

The air quality assessment prepared for the project determined that with the implementation of the dust and emissions control related project design features above, which the LRDP FEIR determined would reduce the LRDP's cumulatively considerable contribution to these impacts to the extent feasible, the proposed SB2 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 SB2 would not result in cumulatively considerable impacts related to a net increase of any criteria pollutant.

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

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

Less than Significant

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 operational 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

Not applicable

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 explained in the Project Description, the project site is located in the UCI Academic Core planning sector and is in a developed condition in an urbanized area of the campus. 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. These figures identify Planning Areas that overlay biological resource areas to analyze the impacts that may occur from implementation of the 2007 LRDP (LRDP FEIR Vol I page 4.3-35). No biological resource areas are located on or adjacent to the project site as illustrated in LRDP FEIR Figure 4.3-2 ("Plant Community Map"). As stated in the Project Description, the project would comply with state and federal regulations pertaining to construction during the bird nesting season.

Discussion of Potential Project Impacts

As no existing or potentially candidate sensitive, or special status plant or animal species was identified on the proposed project site during the biological surveys conducted for the LRDP FEIR, no species impacts would occur with construction of the project. Additionally, as stated above the project would comply with regulations pertaining to construction during the bird nesting season.

Applicable LRDP EIR Mitigation Measures Incorporated In The 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 noted previously, the project site is in a developed condition, which the biological surveys for the LRDP FIER classified as "Construction" and absent the presence of sensitive species. No riparian habitat is present.

Discussion of Potential Project Impacts

As construction of the proposed project would not affect riparian habitat or a sensitive vegetation community within a dedicated campus open space area there would be no 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

3.c) Federally Protected Wetlands: No Impact

Relevant Elements of Project

No federally protected wetlands are located on the site.

Discussion of Potential Project Impacts

As no areas of 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 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

3.d) Wildlife Corridors: No Impact

Relevant Elements of Project

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 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

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 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

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

Relevant Elements of Project

The site and surrounding areas are 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 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

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 approximately 0.74 miles away from the project site was determined to have historical significance.

Discussion of Potential Project Impacts

As 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 The Project

None required

Significance Determination After LRDP EIR Mitigation Measures

No impact

Additional Project-Level Mitigation Measures

None required

Significance Determination After All Mitigation

Not Applicable

4.b) Archaeological Resources: No Impact

Relevant Elements of Project

As noted in 2007 LRDP FEIR Table 4.4-1, four archaeological resources were discovered in the Central Campus but none in the vicinity of the Social Sciences Quad or other areas of the Academic Core (LRDP FEIR Vol I page 4.4-3). As noted in the Project Description, a qualified archaeologist would monitor land clearing and grading activities associated with the project to ensure that any materials previously undetected which are uncovered during project construction are properly identified and recovered.

Discussion of Potential Project Impacts

As the LRDP FEIR did not identify any resources in the vicinity of the Social Sciences Quad and because the project's land clearing and grading activities would be monitored and any materials previously undetected which are uncovered during project construction are properly identified and recovered, no impacts would occur.

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

4.c) Paleontological Resources: No Impact

Relevant Elements of Project

Paleontological investigations conducted for UCI in 1988 determined that the project site is not located in an area of the campus considered to be of high sensitivity for vertebrate and invertebrate fossils. As depicted on LRDP FEIR Figure 4.4-1, the project site is located within an area of the campus considered to be of low to moderate sensitivity for vertebrate and invertebrate fossils (LRDP FEIR Vol I pages 4.4-19/20). As noted in the Project Description, a qualified paleontologist would monitor excavation of sedimentary rock associated with the project to properly identify and recover any fossils discovered during project construction.

Discussion of Potential Project Impacts

As the project's sedimentary rock excavation activities would be monitored and any fossils which are uncovered during project construction are properly identified and recovered, no impacts would occur.

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

4.d) Human Remains: No Impact

Relevant Elements of Project

No human remains have been identified on or adjacent to the developed project site. However, 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.

Discussion of Potential Project Impacts

If human remains were discovered during grading, the contractor would be required to notify the County Coroner, in accordance with section 7050.5 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.

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

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, Strong Seismic Shaking, Liquefaction, Landslides: Less Than Significant Impact

Relevant Elements of Project

No active or potentially active earthquake faults have been identified on the UCI campus through the State Alquist-Priolo Earthquake Fault Zoning Act program. A locally mapped fault trace, known as the "UCI Campus Fault" is located more than 800 feet south of the project site, following a northwest to southeast alignment from University Drive through the campus center and along Anteater Drive (see Figure 4.5-1 LRDP FEIR Vol I page 4.5-3). The entire campus, like most of southern California, is located in a seismically active area, where strong ground shaking could occur during movements along any one of several faults in the region. An earthquake of magnitude 7.5 on the Richter scale could occur along the Newport-Inglewood Fault, the nearest major fault located approximately 4.5 miles southwest of the campus. Earthquakes along the San Andreas Fault, about 35 miles northeast of the campus could generate an 8.0 magnitude level of energy, and movement along the San Jacinto Fault, about 30 miles away, could release ground motion energy estimated at 7.5 on the Richter scale (LRDP FEIR Vol I page 4.5-2).

The 2007 LRDP FEIR indicates that a majority of soils on the UCI campus are characterized as dense terraced deposits, which are unlikely to be subject to liquefaction. The majority of the campus, including the project site, is characterized as gentle sloping to flat terrain and not susceptible to potential earthquake-induced landslides (LRDP FEIR Vol I page 4.5-9).

Discussion of Potential Project Impacts

As the project site is located more than 800 feet from the "UCI Campus Fault" it would be located outside the 50 foot Restricted Use Zone (RUZ) established on campus to protect new development near the fault and not in the immediate vicinity of any known active faults there would be no impacts involving a fault rupture (LRDP FEIR Vol I page 5.5-8/10). An earthquake along any number of 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 UC "Seismic Safety Policy." As such, compliance with these regulatory standards would ensure that hazards associated with seismically induced ground shaking are reduced to less than significant (LRDP FEIR Vol I page 4.5-9). As noted earlier, the majority of soils on the UCI campus are terraced deposits comprised of dense materials with relatively deep groundwater. Compliance with the CBC, the UC Seismic Safety Policy, and implementation of recommendations in a site-specific geotechnical investigation would reduce any potential hazards associated with liquefaction or landslides to less than significant (LRDP FEIR Vol I page 5.5-9).

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

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 SB2 site is a developed site with surface areas containing site paving and landscaping.

Discussion of Potential Project Impacts

Project demolition 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 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 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

5.c) Unstable Soil: Less Than Significant Impact

Relevant Elements of Project

As stated in the Project Description, the proposed project site is currently in a developed condition. 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, approximately one 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 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

5.d) Expansive Soil: Less Than Significant Impact

Relevant Elements of Project

Expansive soils are prevalent on the UCI campus and are 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 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

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 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

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 which assesses the project's construction and operational related GHG emissions (See Appendix B). This analysis is derived from analysis prepared for a like facility (UCI GHEI Building) with the same setting related to GHG Emissions as the SB2 Project. SB2 has the same general square footage, building height, footprint, site size, earthwork quantities, construction materials, means, and schedule for each phase of construction, and project operations as the GHEI. 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 B page 25). 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 B page 26). 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 calculated the project's anticipated 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 B page 27) would be less than 600 metric tons per year and its 30-year project life average annual emissions per SCAQMD thresholds would be less than 20 metric tons per year. The project's total annual operational carbon dioxide emissions as indicated in Table 5 (Appendix B page 28) would be less than 2,900 metric tons per year. The project's total estimated annual emissions as noted in Table 5 would be 2,900 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 B page 29). Combined with all other sources of GHG emissions associated with implementation of the 2007 LRDP, the project would incrementally contribute to global climate change (LRDP FEIR Vol I pages 5-8/9); however, it would not interfere with California's ability to achieve GHG reduction requirements (Appendix B page 29). As such, the Project's contribution to the existing significant cumulative effects associated with global climate change would not be cumulatively considerable.

Although no mitigation measures would be required to complete the project, as suggested in the GHGA additional actions to reduce emissions have been incorporated into the project. As stated in the Project Description, construction would be consistent with the University's Policy on Sustainable Practices (Policy). The GHGA confirms that compliance with the Policy would minimize GHG emissions associated with the operation of the project and would ensure that the project not interfere with California's ability to achieve its GHG reduction requirements (Appendix B page 29). 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 Design Builder 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. For information on Title 24 energy performance the following website should be consulted: http://www.energy.ca.gov/title24/.
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. The University of California is also a signatory of the American College and University Presidents' Climate Commitment, which requires development of a comprehensive plan to achieve climate neutrality as soon as possible.

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. 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 SB2 could involve the transport, use, or disposal of minor quantities of materials related to landscaping, and general building operations and site maintenance (LRDP FEIR Vol I page 4.6-21).

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 (LRDP FEIR Vol I page 4.6-30). 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 (if available), and outside contractors. A Hazardous Materials Business Plan also addresses emergency and spill response procedures which include, 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.

The University’s standard construction specifications would require that contractors working on the SB2 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 noted above such as those related to building and site maintenance are considered unlikely. The SB2 project 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. Therefore, the project’s impacts related to accidental release due to the increased transportation, storage, or use of hazardous materials would be less than significant. Compliance with all applicable federal and State laws, as well as established campus programs, practices, and procedures related to the transport and release of hazardous materials would minimize the potential for impacts to less than significant (LRDP FEIR Vol I pages 4.6-28 & 30).

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.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 impacts to schools are anticipated (LRDP FEIR Vol I pages 4.6-31/32).

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.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 (December, 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 are 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 three miles 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: Less than Significant Impact

Relevant Elements of Project

As stated above, UCI has an Emergency Management Plan (EMP) 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). As stated in the Project Description, if a temporary lane or road closure is necessary at any time during construction the construction contractor and/or UCI Design and Construction Services would notify the UCI Fire Marshal in advance to ensure coordination of local emergency services that might be affected.

Discussion of Potential Project Impacts

As stated above, because the UCI Fire Marshall would be notified in advance of any temporary lane or road closures during construction less than significant impacts would occur. Operational aspects of the proposed project would not be anticipated to interfere with the EMP.

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

7.h) Wildland Fires: Less Than Significant Impact

Relevant Elements of Project

As noted in the LRDP FEIR, coastal sage scrub and grasslands are flashy fuels that can easily ignite during dry conditions. As stated previously, the SB2 would be constructed on an existing developed site containing neither coastal sage scrub nor grasslands and is not in the vicinity of any grassland identified in the LRDP FEIR (LRDP FEIR Vol I pages 4.6-35/36). Portions of the project to be landscaped would not consist of the types of fire-prone vegetation described in the LRDP FEIR.

Discussion of Potential Project Impacts

The LRDP FEIR concluded that impacts related to wildland fires on the campus would be less than significant (LRDP FEIR Vol I page 4.6-36).

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

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 SB2, 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 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 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

8.b) Groundwater: No Impact

Relevant Elements of the Project

Groundwater removal is not proposed; UCI, including the proposed project uses water supplied by the IRWD (LRDP FEIR Vol I page 4.7-27).

Discussion of Potential 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 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

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

Relevant Elements of the Project

As stated above, the site for the new building is in a developed and urbanized area of the campus, which neither contains nor is adjacent to a stream or river. Runoff from the completed building and adjacent impervious areas will flow into the existing storm drainage network adjacent the site and would not result in erosion or flooding on or off site. As stated in the Project Description, prior to construction a drainage study would be completed and its design features and recommendations incorporated into the SB2's plans

and construction documents, which would be consistent with UCI's Storm Water Management Program and at a minimum would include site design that controls runoff discharge volumes and durations where applicable and feasible, to maintain or reduce the peak runoff for the 10-year, 6-hour storm event in the post-development condition compared to the pre-development condition, or as defined by current water quality regulatory requirements, and measures that control runoff discharge volumes and durations where applicable and feasible, on manufactured slopes and newly-graded drainage channels, such as energy dissipaters, revegetation, and slope/channel stabilizers. Following implementation of the project, similar to its current state, the site would be developed with impervious surfaces.

Discussion of Potential Impacts

As noted above, prior to construction the project plans and construction documents would incorporate the design features and recommendations of a drainage study consistent with UCI's stormwater program. The LRDP FEIR determined that because all campus construction sites are managed under UCI's Storm Water Management Plan in compliance with NPDES Phase II regulations, alterations to drainage and hydrology during construction would be less than significant. The LRDP FEIR also concluded that minor alterations to existing drainage patterns resulting from projects such as the SB2 would not substantially alter the campus' drainage courses as a whole (LRDP FEIR Vol I pages 4.7.17-19). Thus, less than significant impacts with respect to erosion on or off-site would occur.

Applicable LRDP 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

8.d) Flooding On or Off-Site: Less Than Significant

Relevant Elements of the Project

As stated in the Project Description and 8.a above, the proposed building site is in a developed condition containing paved surfaces and an on-site drainage system. As stated in the Project Description, prior to construction a drainage study would be completed and its design features and recommendations incorporated into the SB2's plans and construction documents, which would be consistent with UCI's Storm Water Management Program and at a minimum would include site design that controls runoff discharge volumes and durations where applicable and feasible, to maintain or reduce the peak runoff for the 10-year, 6-hour storm event in the post-development condition compared to the pre-development condition, or as defined by current water quality regulatory requirements, and measures that control runoff discharge volumes and durations where applicable and feasible, on manufactured slopes and newly-graded drainage channels, such as energy dissipaters, revegetation, and slope/channel stabilizers.

Following implementation of the project, similar to its current state, the site would be developed with impervious surfaces.

Discussion of Potential Impacts

The rate or amount of surface runoff, which would be generated by the project, is anticipated to be approximate to the site's present conditions. As noted above, prior to construction the project plans and construction documents would incorporate the design features and recommendations of a drainage study consistent with UCI's stormwater program. Thus, less than significant impacts with respect to erosion on or off-site would occur.

Applicable LRDP 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

8.e) Create or Contribute Runoff Water: No Impact

Relevant Elements of the Project

As stated above, the rate or amount of surface runoff, which would be generated by the new building project, would be anticipated to approximate present conditions. The composition of runoff from the proposed building rooftop and ground level hardscape areas as noted previously would be similar to that from the campus as a whole.

Discussion of Potential Impacts

As stated in the Project Description, the project would include stormwater management improvements. Flows from the SB2 building would continue to drain to the existing storm drainage system. Thus, no impacts would occur with respect to runoff.

Applicable LRDP 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

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

Relevant Elements of the Project

Please refer to the responses to items 7a-7e; no other project elements would affect the water quality of the site or its surroundings.

Discussion of Potential Impacts

Please refer to the responses to items 7a-7e; no other project impacts would substantially degrade the water quality of the site or its surroundings.

Applicable LRDP 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

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

Relevant Elements of the Project

The project would construct an academic building, not housing.

Discussion of Potential Impacts

As the project would not construct housing no impact would occur.

Applicable LRDP 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

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

Relevant Elements of the 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 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 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

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

Relevant Elements of the Project

There are no levees or dams anywhere on or near the UCI campus.

Discussion of Potential 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 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

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

Relevant Elements of the 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 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 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. 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. The proposed building would be constructed in an area of the campus which is designated for Academic and Support uses in the LRDP Land Use Plan.

Discussion of Potential Project Impacts

This proposed project would have no effect on the land use pattern of the surrounding community, either on or off campus. No major streets would be built or removed as a part of this project. The proposed project would complement the existing buildings in the Social Sciences Quad. As such, the proposed project would have no effect on the physical framework of the surrounding 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 this land is not governed by any policies or regulations adopted to avoid or mitigate an environmental effect, there would be no impact. UCI is not subject to municipal regulations such as the City of Irvine General Plan. The proposed project, as detailed in the Project Description, is consistent with the 2007 LRDP land use plan.

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.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 Academic Core or project site.

Discussion of Potential Project Impacts

Because neither the Academic Core nor the project site is 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 the project is consistent with the land use policies in the 2007 LRDP and would not affect the physical framework of the campus, or land use opportunities of any surrounding land.

Discussion of Potential Project Impacts

The proposed project would be a compatible component of the existing Social Sciences Quad and Academic Core sector, and would 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: No Impact

Relevant Elements of Project

As discussed in the LRDP FEIR, land use/noise compatibility planning is guided primarily by the criteria developed by the California Department of Health Services (CDHS) to support development of the Noise Elements in local general plans (LRDP FEIR Vol I page 4.9-24). These criteria indicate that the state

normally acceptable noise standard limit for office uses in the Inclusion Areas is 70dBA CNEL (LRDP FEIR Vol I page 4.9-7). Normally acceptable is defined as satisfactory for the specified land use, assuming that normal conventional construction is used in buildings (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). UCI complies with CCR Title 24 pertaining to noise standards and other state building standards.

Discussion of Potential Project Impacts

Table 4.9-4 in the 2007 LRDP FEIR provides the existing traffic noise levels and estimated LRDP's implementation levels along UCI's roadway segments. The table indicates that the existing 59dBA CNEL contour is 50 feet and the 60dBA CNEL contour 40 feet from the Pereira Drive centerline. Future traffic related noise levels for this segment of the roadway are 57dBA CNEL at 50 feet and 60dBA CNEL at 25 feet from the roadway's centerline and no areas along Pereira Drive would reach noise levels of 70dBA CNEL (LRDP FEIR Vol I page 4.9-15). The proposed building at its nearest point to Pereira Drive would be approximately 37 feet from the roadway's centerline. Therefore, as the building would be constructed outside of the 60dBA CNEL noise contour (well below the 70bBA standard) no impacts related to noise standards would occur (LRDP FEIR Vol I pages 4.9-24/31).

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: Less than Significant

Relevant Elements of Project

As stated in the Project Description, construction of the proposed project may require the use of demolition equipment such as jackhammers; however, pile driving would not be necessary. The project's construction specifications, also noted in the Project Description, would ensure that such activity occurring within 600 feet of a residence or an academic building shall not be scheduled during any finals week of classes.

Discussion of Potential Project Impacts

The proposed project would not be anticipated to generate operational related groundborne noise and as stated above construction activities which may cause groundborne noise would not occur during any finals week of classes. Thus, the project's impacts related to groundborne noise would be less than significant level.

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

10.c) Permanent Ambient Noise: Less Than Significant Impact

Relevant Elements of Project

As stated previously, the proposed project would construct a new building in the UCI Academic Core, adjacent to existing development. Existing ambient noise sources in the immediate vicinity of the project site include occasional vehicular traffic along Pereira Drive and in the existing Parking Lot 1 and the Social Sciences Parking Structure. The 2007 LRDP FEIR, indicated that permanent noise sources could be divided into vehicular and stationary sources, such as human activity. Implementation of the 2007 LRDP was determined to have a significant noise impact if it would result in noise levels in excess of State of California (applicable on campus) or City of Irvine (off campus) standards and a permanent increase of 3 dBA or more in ambient noise levels at sensitive receptors (2007 LRDP FEIR Vol I page 4.9-24).

Discussion of Potential Project Impacts

Since this project is consistent with the LRDP's land use intensity policies for the Academic and Support Use classification 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 in Parking in Lot 1 and the Social Sciences Parking Structure; however, as such noises (car doors slamming, cars starting, cars accelerating away from the parking stalls, etc.) are currently occurring in these parking facilities any additional noise would not result in a substantially noticeable permanent increase in ambient noise levels within the vicinity. Due to its distance from the project, noise from Parking Lot 1 and the Social Sciences Parking Structure would likely not be discernable within the new building.

The primary source of noise that would be generated by the project is related to vehicle trips to and from the site. As previously stated, vehicle access to the SB2 would occur from Pereira Drive. 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. As such, the project would not affect adjacent noise-sensitive receptors such as classrooms. Once completed the noise environment in the project vicinity would be typical of conditions throughout the academic core and not represent a noticeable substantial permanent

increase of ambient noise levels. 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: Less Than Significant Impact

Relevant Elements of Project

Project construction as stated in the LRDP FEIR (Vol I page 4.9-31) is 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; however, as there would be a balance of cut and fill no trucks will be required to import or export soil. Construction related truck traffic would also comply with the City of Irvine's Designated and Restricted Truck Routes. Sensitive uses within the project vicinity include classrooms within the Social Sciences Quad and the Middle Earth student-housing complex (approximately 500 feet from the project site). The project's construction specifications, also noted in the Project Description, would limit construction operations to daytime hours, require proper equipment maintenance and muffling devices, and place restrictions on weekend construction activities.

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 two-year 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 6dB 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 but due to distance and intervening structures not at Middle Earth Housing (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. The standard construction specifications noted above would reduce any potential temporary noise impacts from construction activities to below a level of significance.

Applicable LRDP EIR Mitigation Measures Incorporated In The Project

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 2.5 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

10.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

As noted in the Project Description, the proposed project would construct a new building to provide space for the UCI SB. New faculty and staff that would occupy the proposed project 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 UCI employees hired because of 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 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.b-c) Replacement Housing: No Impact

Relevant Elements of Project

As stated in the Project Description the proposed project would construct a new academic building on the UCI campus, which 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 with the entire UCI main campus, the Orange County Fire Authority (OCFA) would provide fire protection services to the SB2. 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 4.11-2). Additionally, the UCI Fire Marshal reviews and approves all development plants to ensure adequate fire access, as well as fire prevention, for each new campus project in accordance with California building and fire codes. (LRDP FEIR Vol I pages 4.11-6/7).

Discussion of Potential Project Impacts

The LRDP FEIR determined that neither a new fire station nor expansion of Fire Station #4 would be necessary to maintain adequate levels of service to the main campus to serve LRDP development. As stated in the Project Description, the SB2 is consistent with the 2007 LRDP and therefore would not result in the long-term demand levels projected in the LRDP FEIR for fire protection service being exceeded. The LRDP FEIR concluded that Station #4 could accommodate the increased demand for fire protection services at 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, which would result in adverse impacts on the physical environment (LRDP FEIR Vol I pages 4.11-6).

As noted above, the campus Fire Marshal would review the SB2. The campus would also continue to implement the UCI Emergency Management Plan, which addresses the campus community's planned response to emergency situations, including fire, and emergency access on the campus. Further, the UCI Fire Marshal and his or her staff would continue to implement campus-wide fire prevention programs. These actions, mandated by state and federal law, would limit the number of incidents requiring the OCFA to respond to on-campus calls. The LRDP FEIR concluded that 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 SB2 would provide new space for the School of Business with most of these functions already provided in other facilities 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). No specific facilities plans are identified in the LRDP and any additional facilities would be subject to assessment of environmental impacts and mitigation measures, pursuant to the University's obligations under CEQA; no significant impacts associated with additional police facilities were anticipated in the LRDP FEIR. Impacts associated with maintaining adequate police services associated with the proposed project would be less than significant. Thus, the project would not result in any substantial adverse physical impact as a result of increased demand for police protection services that result in the need for new or physically altered police protection 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.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 existing and future SB programs. Thus, the SB2 would accommodate faculty and staff who are already working on the campus, as well as faculty and staff whom will be hired to meet UCI's future needs. It is not known what percentage of the existing faculty and staff is heads of households with school-age children that attend Irvine Unified School District (IUSD) schools. To the extent that future faculty and 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 faculty and staff with school-age children, the LRDP FEIR concluded that new K-12 students living on the campus because of implementation of the LRDP would represent a small percentage of IUSD enrollments, which may not even be perceivable within its yearly student enrollment fluctuations. Thus, the project's impact would be less than significant and no mitigation is required. (LRDP FEIR Vol I page 4.11-10)

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 a new campus building on a developed site, which is not within an area planned in the LRDP for a park. The completed project would provide additional space for the SB and would not affect the level of usage of any on or off campus parks. Recreation facilities are readily available on campus and include Aldrich Park, the Crawford Athletics Complex, and the Anteater Recreation Center (ARC).

Discussion of Potential Project Impacts

As stated previously, the SB2 would provide space for future faculty and staff whom may not currently reside on or near the campus, or in Orange County but would not exceed the amount foreseen by the 2007 LRDP and not represent the type of population increase to trigger demand for new parks either on or off campus. Additionally, the construction of new parks, either on or off campus would be subject to CEQA analysis.

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 SB2.

Discussion of Potential Project Impacts

As stated previously, the proposed project would construct a new building on an existing developed site, 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 effect upon governmental facilities off campus. Thus, the project would not result in any substantial adverse physical impact as a result 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

No governmental or public service facilities are located on campus that is not operated as part of the UCI service network.

Discussion of Potential Project Impacts

As stated previously, the proposed project would construct a new building on the UCI campus for the SB that is consistent with the land use policies contained in the 2007 LRDP. The SB2 would not generate any

unique demands for 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 academic building. Recreation facilities are readily available on campus and include Aldrich Park, the Crawford Athletics Complex, and the Anteater Recreation Center (ARC). Off-campus recreation opportunities include numerous city, county, and state parks, and private health clubs located in the campus vicinity.

Discussion of Potential Project Impacts

Although the proposed project would provide space for future UCI faculty and 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 academic building and does not include construction of recreation facilities.

Discussion of Potential Project Impacts

As discussed previously, although the proposed project would provide space for future UCI employees, it would not result in more faculty or staff than analyzed in the LRDP FEIR. Thus, the project would not generate increased demand for recreation, which would require the construction or expansion of existing recreational facilities on or off-campus. The LRDP FEIR concluded that because UCI offers its faculty and 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 and any necessary future on campus recreational projects would require review pursuant to CEQA prior to approval (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 An Applicable Plan, Ordinance Or Policy Establishing Measures Of Effectiveness For The Performance Of The Circulation System: Less than Significant

Relevant Elements of Project

As stated in the Project Description, the proposed project would construct a new building for the UCI SB and would include bike and pedestrian trail connections to the existing campus trail network; no new roadways are proposed and encroachment permits from the California Department of Transportation would not be required. The proposed SB2, as also noted in the Project Description, would primarily serve existing SB programs and centralize them in one geographic location. Vehicular access to the site would be provided from Pereira Drive via East and West Peltason Drives. As noted in the Project Description, although construction of the project is not expected to require an on-campus lane or roadway closure, if an on-campus lane or roadway closure is necessary, or could interfere with campus traffic circulation, the contractor would be required to provide UCI with a traffic control plan. For projects undertaken on the campus, the UCI LRDP is the applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system.

Consistent with the traffic study prepared for the 2007 LRDP, the analysis of the project's impact on the campus and surrounding transportation network for this Initial Study derived its data as provided in the LRDP FEIR from the Irvine Transportation Analysis Model (ITAM) and the UCI Main Campus Traffic Model (MCTM). 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). The MCTM is the model used for evaluating the on campus roadway system and is designed to forecast future traffic volumes on the UCI main campus roadway system and is based upon future land use as identified in the 2007 LRDP (LRDP FEIR Vol I page 4.13-27).

Traffic level of service (LOS) is designated "A" through "F" with LOS "A" representing free flow conditions and LOS "F" representing severe traffic congestion. The traffic study's target LOS is D (the minimum performance standard for signalized intersections on and off-campus) or better, which is equivalent to a volume/capacity (V/C) or intersection capacity utilization (ICU) ratio of 0.90 and is calculated through an examination of intersection geometry and traffic counts (LRDP FEIR Vol I page 4.13-13). The LRDP FEIR indicated that for off-campus roadway links and intersections that would operate below LOS D, impacts associated with the 2007 LRDP would be significant. For freeway/tollway ramps and mainline segments, LOS E is considered acceptable. As identified in Table 2 below, all of the intersections in the project's surrounding circulation network currently operate at LOS "A" or "B", well above the adopted threshold for acceptable performance of LOS "D" or better (LRDP FEIR Volume II Table 3-1). Therefore, no deficient conditions exist at on-campus or off-campus intersection to which the project would contribute.

Table 2 – Existing Level of Service of Key Intersections

Intersection	Location	AM LOS	PM LOS
East Peltason and Pereira	UCI	A	A
West Peltason and Pereira	UCI	A	A
Pereira and Pereira	UCI	A	A
East Peltason and Anteater Drive	UCI	A	A
Bridge Road and Campus Drive	City of Irvine	A	A
Berkeley Avenue and Campus Drive	City of Irvine	A	A
Berkeley Avenue and Harvard	City of Irvine	A	A
Bridge Road and Harvard	City of Irvine	A	A
California Ave and Campus Drive	City of Irvine	A	B

Discussion of Potential Project Impacts

Table 3 below, provides the project trip generation for the SB2 project upon its completion in 2014 based on generation rates adopted in the 2007 LRDP FEIR for average daily trip ends (ADT) and AM and PM Peak Hour trips. Likewise, consistent with the traffic analysis prepared for the 2007 LRDP, computation of the project's trip generation does not include part time fully employed graduate students who are not on campus daily or during peak hours.

Table 3 - SB2 2014 Trip Generation

Population	ADT *	AM Peak Hour*	PM Peak Hour*
Full Time Students	156	11	14
Faculty	15	1	1
Staff	4	<1	<1
Total	**175**	**12**	**15**

*Trip Rates derived from UCIMCTM trip generation rates

As indicated in Table 3, the project would generate a small increase in daily trips on the local traffic network, approximately 175 ADT. In addition, the project would result in a minimal increase in peak hour trips (12 AM and 15 PM Peak Hour Trips), which are below significance thresholds if there were deficiencies in the local network serving the project (see peak hour intersection volumes in FEIR Volume II pages B-9 through B-14) and no such deficiencies exist. Therefore, based on the existing performance of the local traffic network as identified in Table 2 above, and the project's minimal contribution to local trips, based on adopted standards (i.e. contributing to a deficient condition by an increase of 2% or more) the project would not result in significant impacts on the surrounding circulation network in 2014/15

The 2007 LRDP FEIR analyzed the trip generation for long range academic facility development in the Academic Core. Development of the SB2 project was included in the overall trip generation and distribution projections for the Academic Core and Social Sciences Quad within the UCIMCTM Traffic Model (Traffic Zone 2 -LRDP FEIR Volume II Table A-1). Long term trip generation resulting from the SB2 project represents a minimal contribution to the overall trip generation of 9,439 ADT for this UCIMCTM Traffic Zone for 2025 and post-2025 LRDP traffic forecasts. Thus, the SB2 would not have significant traffic impacts and no project mitigation measures would be required to construct or operate the project. In addition, the assumptions and conclusions of this traffic study are consistent with the findings and conclusions of the traffic analysis prepared for the 2007 LRDP.

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.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 1.6 miles and 1.5 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 2.5 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 effect 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 a currently developed parcel and vehicular access would occur via Pereira Drive as depicted on Exhibit 1 (page 7). 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 stated previously the proposed project would construct a new building on a developed site. No new access ways are proposed and implementation of the SB2 is not anticipated to require alteration of the existing access to the Social Sciences Quad.

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 VI 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 VI 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 bike and pedestrian pathways and maintain links to the existing campus trail network adjacent the proposed new building. New bike racks or other bicycle storage facilities would also be provided to meet projected demand. The existing campus bike and pedestrian pathways within the project vicinity would not be adversely affected by construction or operation of the proposed project nor would campus bus and shuttle service be interrupted.

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 provide new bicycle and pedestrian access to the campus and links to the existing campus trail network and not interrupt campus bus or shuttle service, 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: Less Than Significant

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 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 (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 of New Water or Wastewater 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.

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 developed and located in an urbanized portion of the UCI campus; the existing stormwater drainage pattern would be maintained with stormwater collected on site and conveyed to an existing facility. The project would not require the construction of new or expanded storm drain facilities on the campus.

Discussion of Potential Project Impacts

Compared to the site's existing conditions, the SB2 would not change the imperviousness of the site such that it would substantially generate additional stormwater drainage. 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: Less Than Significant

Relevant Elements of Project

As stated in the Project Description, the proposed project would construct a new building on the campus, which would increase UCI's water demand (potable and reclaimed), which 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 4.14-16).

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 because sufficient water supplies are available to serve the campus, no mitigation measures would be required to implement the 2007 LRDP. As the SB2 is consistent with the 2007 LRDP, no significant impacts would occur (LRDP FEIR Vol I pages 4.14-16/17).

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: Less Than Significant

Relevant Elements of Project

There are presently no wastewater collection or disposal/treatment facilities on the project site. As stated previously, the project would connect to existing sewer lines and convey wastewater for treatment at the MWRP located northwest of UCI and operated by the IRWD.

Discussion of Potential Project Impacts

The MWRP currently treats up to 18 mgd of wastewater; an upgrade to 33 mgd is scheduled to be completed in 2025. IRWD forecast a total service area demand for wastewater treatment of 26.11 mgd by 2025, including the projected increase associated with full implementation of the 2007 LRDP. With the 33-mgd upgrade, the MWRP would have sufficient capacity to accommodate the 2007 LRDP's anticipated sewage generation, along with wastewater generated throughout the rest of the IRWD service area. Therefore, the impact to wastewater treatment capacity from implementation of the 2007 LRDP was determined to be less than significant. As the SB2 is consistent with the 2007 LRDP, no mitigation measures would be required (LRDP FEIR Vol I pages 4.14-12/13).

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

15.f) Landfill Capacity: Less Than Significant

Relevant Elements of Project

Non-hazardous solid waste to be generated by the SB2 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. In 2005, a total of 2,238,050 tons of waste was disposed of at the FRB Landfill. UCI generated approximately 4,960 tons of solid non-hazardous waste in 2005, representing approximately 0.22 percent of the annual total deposited at the FRB Landfill. The FRB 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. The County's Integrated Waste Management Department (IWMD) is proposing to expand the capacity of the landfill by 104 million cubic yards, to increase its daily limit to 11,500 tons. This added capacity is planned to handle Orange County's growing population, including an expanded UCI campus, and extend the life of the FRB Landfill to 2053 (LRDP FEIR Vol I pages 4.14-17/18).

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 "Silver" level of Green Building Certification for all new building construction. 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. As the SB2 is consistent with the 2007 LRDP, no mitigation measures related to landfill capacity would be required and no significant impacts would occur (LRDP FEIR Vol I page 4.14-18).

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: Less Than Significant

Relevant Elements of Project

The proposed project would generate the same types of solid wastes as those generated by other campus buildings. The SB2 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 pages 4.14-19/20).

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; no impacts would occur. UCI will continue to implement, promote and improve the campus-wide comprehensive waste prevention and recycling program and the UC Sustainability policy described above with implementation of the 2007 LRDP. Thus, 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 4.14-19/20). As the SB2 is consistent with the 2007 LRDP, no mitigation measures related to solid waste regulations would be required and no significant impacts would occur (LRDP FEIR Vol I pages 4.14-19/20).

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 or Wildlife Populations, Eliminate Examples of California History: Less Than Significant

The project site is an existing developed site in the UCI Academic Core, an urbanized portion of the campus 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 noted in the Project Description and Section 4, a qualified professional would monitor site grading and/or excavation activities with respect to archeological or paleontological resources.

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

The SB2 project involves the construction of a new building on a portion of a developed site, in accordance with the land use policies established by the 2007 LRDP. It would accomplish key School of Business 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 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 Academic Core 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 or 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.* December 2011

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.

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APPENDIX A

AIR QUALITY ANALYSIS

Air Quality Assessment For:
GAVIN HERBERT EYE INSTITUTE

Prepared For:

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Report #517001AQ1

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1.0 Existing Air Quality

1.1 Project Description

The proposed Gavin Herbert Eye Institute (GHEI) would include a three to four story building with 84,000 gross square feet (gsf) and 43,400 assignable square feet (asf) to be used by the University of California, Irvine (UCI) School of Medicine's Ophthalmology Department. The project site is approximately 1.5-acres located near the southwest corner of Bison Avenue and Health Sciences Drive located between Parking Lot 83 and Bison Avenue within the Biomedical Research Center (BRC) of the UCI Heath Sciences Complex. Exhibit 1 presents a vicinity map showing the project location and Exhibit 2 shows an aerial photograph of the project site. The existing site is currently used as a gravel parking area.

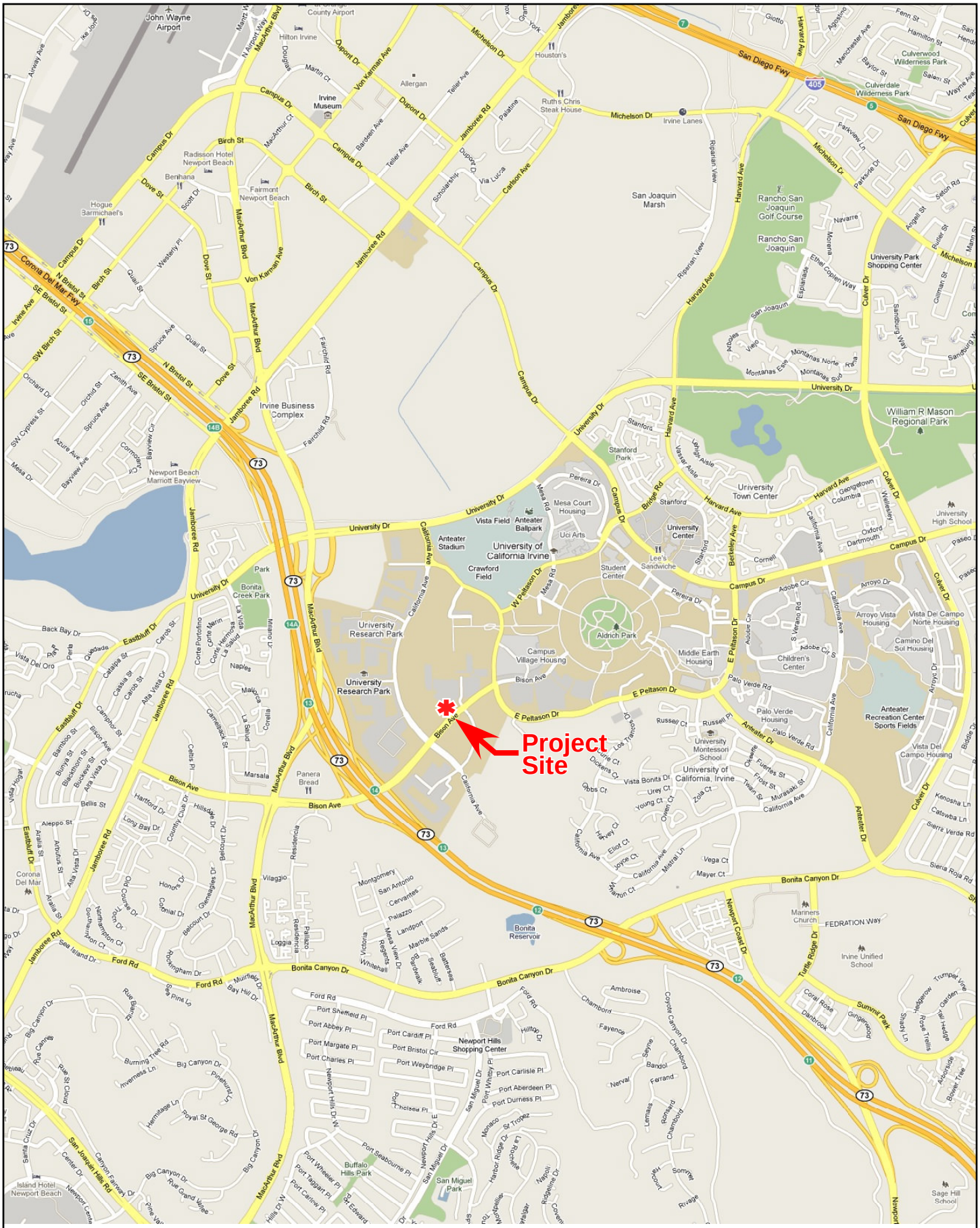
Existing clinical and surgical functions, currently housed at the Gottschalk Medical Plaza located approximately 0.30 miles from the project site, would be relocated to the project site. Approximately, 4,700 asf of the building would be used for Ambulatory Surgery, 6,000 asf for Ophthalmology Clinics, 800 asf for Optical Sales. Approximately, 31,900 asf of the proposed building would initially remain shell (i.e., unfinished) space which would be outfitted in the future to serve additional UCI Health Services functions. For this analysis, it was assumed that this shell space would be utilized as medical clinic space to estimate the impacts of the building when fully occupied.

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

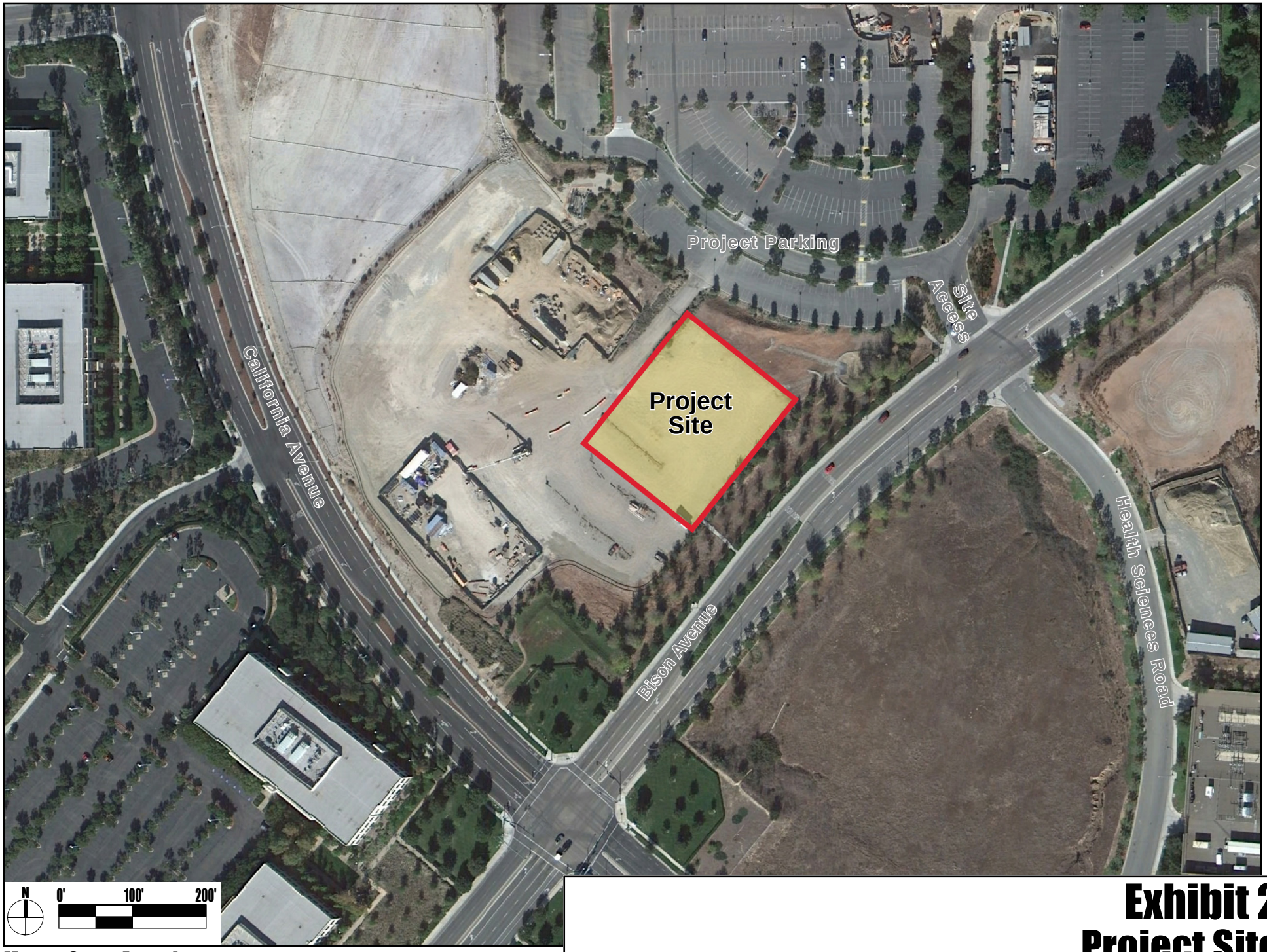


Exhibit 2
Project Site

Mestre Greve Associates

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	--	--	--	--
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 8/26/10
SCAQMD Historical Data Website http://www.aqmd.gov/smog/historicaldata.htm accessed 8/26/10

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	--	--	--	--
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	55.0	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	10.3	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 8/26/10
SCAQMD Historical Data Website http://www.aqmd.gov/smog/historicaldata.htm accessed 8/26/10

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 commercial uses are located immediately adjacent to the proposed project. Therefore, a 25-meter (83 feet) receptor distance was used to establish the thresholds for CO and NO_X which have 1-hour averaging ambient air quality standards. The nearest residential uses are located approximately 1,000 feet northeast of the project site at the northeast corner of Bison Avenue and Peltason Drive. Therefore, a 304.8 meter (1,000 foot) receptor distance was used to establish the threshold for PM_{10} and $PM_{2.5}$ which have a 24-hour averaging ambient air quality standards. The GHEI Building site is approximately 1.5 acres. 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	804.5	111.5	86.5	43.4
Operation	804.5	111.5	21.0	11.0

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.

The URBEMIS low level of detail was used to calculate fugitive dust emissions with the default assumption of 10 pounds per day of PM_{10} emissions per acre disturbed plus 118 pounds per day per 1,000 cubic yards of onsite cut/fill plus 440 pounds per day per 1,000 cubic yards of offsite cut/fill and. If water or other soil stabilizers are used to control dust as required by SCAQMD Rule 403, the emissions can be substantially reduced (i.e., by 50+ percent depending on dust control application type and frequency). The fugitive dust emissions of $PM_{2.5}$ and PM_{10} reported below include the default URBEMIS 61% reduction from watering three times per day as required by Rule 403.

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 Gavin Herbert Eye Institute Building is anticipated to begin in February 2011 and take 27 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
Demolition	January 31 2011	4	February 25, 2011
Grading	February 28, 2011	4	March 25, 2011
Building Construction	March 28, 2011	109	April 26, 2013
Arch Coating	March 18, 2013	6	April 26, 2013
Total Duration		**117 (27 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.

Demolition is the removal of the existing improvements and hardscape to prepare the site for the grading and construction of the proposed GHEI building. This work will occur over approximately 1.5-acres of the project site is estimated to take four weeks. Equipment assumed to be utilized during demolition includes (1) tractor/loader/backhoe and (1) water truck. The emissions calculation includes 1 daily haul truck trips with a round trip distance of 20 miles. The URBEMIS2007 default assumptions were used to estimate emissions from worker trips.

Grading is the grading of project site in preparation of building construction. This work will occur over the approximately 1.5-acres of the project site and is estimated to take four weeks. There will be no import or export of materials required and approximately 15,250 cubic yards of material is expected to be moved on site. 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 GHEI 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 dependant 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 2013, 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**
Site Demolition	4.0	8.3	1.0	9.6	2.3	0.00
Site Grading	3.8	7.8	1.0	32.5	7.1	0.00
Construction 2011	15.0	15.2	3.0	1.1	1.0	0.01
Construction 2012	14.4	14.3	2.7	1.1	0.9	0.01
Construction 2013	13.8	13.3	2.5	0.9	0.8	0.01
Painting	0.6	0.0	60.0	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	14.4	13.3	62.5	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}	$PM_{2.5}$
Site Demolition	3.3	7.7	9.6	2.3
Site Grading	3.3	7.7	32.5	7.1
Construction 2011	9.5	14.2	1.1	1.0
Construction 2012	9.3	13.3	1.0	0.9
Construction 2013	9.0	12.4	0.9	0.8
Painting	0.0	0.0	0.0	0.0
Significance Threshold	**804.5**	**111.5**	**86.5**	**43.4**
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 2013, 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	9.1	12.4	0.9	0.8
Significance Threshold	**804.5**	**111.5**	**86.5**	**43.4**
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 27 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. As discussed above, the majority of the building space, 31,900 square feet of the total 43,400 assignable square footage, will be initially unoccupied and the specific uses for this space will be defined at a later time. As a worst-case assumption, the analysis presented below assumes that this unassigned space will be utilized as a medical clinic when the building becomes operational in 2013. Assuming this use for the unassigned area gives the highest expected trip generation for the total project and results in the highest estimate of emissions from the project. 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 84,000 gross square foot medical office building on a 1.5-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 1,562 trips per day based on 43,400 assignable square feet generating 36 trips per day.

Emissions were calculated for the opening year of the project, 2013. 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, 0.2 miles, to the total average trip length of 9.2 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	107.5	9.2	13.3	24.7	4.8	0.15
Natural Gas Combustion	0.5	0.0	0.6	0.0	0.0	0.00
Landscaping	1.6	0.0	0.0	0.0	0.0	0.00
Architectural Coatings	0.0	0.5	0.0	0.0	0.0	0.00
Total Emissions	**109.6**	**9.8**	**13.9**	**24.7**	**4.8**	**0.15**
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 six thousandths 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	0.054775	0.00488	0.006925	0.01233	0.00238	0.000075
2023 South Coast Air Basin*	2,147	95	539	508	318	102
Project as Percentage of Basin	0.0026%	0.0051%	0.0013%	0.0024%	0.0007%	0.0001%

* 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	2.9	0.36	0.67	0.13
Natural Gas Combustion	0.5	0.56	0.00	0.00
Landscaping	1.6	0.00	0.01	0.01
Architectural Coatings	0.0	0.00	0.00	0.00
Total Emissions	**5.0**	**0.92**	**0.68**	**0.14**
Significance Threshold	**804.5**	**111.5**	**21.0**	**11.0**
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 146 additional trips during the PM peak hour, 118 additional trips during the AM peak hour, and a total of 1,562 additional trips each day (Austin-Foust Associates, "Gavin Herbert Eye Institute Traffic Evaluation" 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 Winter Emissions Reports (Pounds/Day)

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

Project Name: Gavin Herbert Eye Institute

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)	2.96	15.24	15.00	0.01	104.98	1.11	105.41	21.92	1.02	22.32	2,262.86
2011 TOTALS (lbs/day mitigated)	2.96	15.24	15.00	0.01	32.07	1.11	32.51	6.70	1.02	7.10	2,262.86
2012 TOTALS (lbs/day unmitigated)	2.74	14.27	14.38	0.01	0.04	1.01	1.05	0.01	0.93	0.94	2,262.75
2012 TOTALS (lbs/day mitigated)	2.74	14.27	14.38	0.01	0.04	1.01	1.05	0.01	0.93	0.94	2,262.75
2013 TOTALS (lbs/day unmitigated)	62.52	13.33	14.36	0.01	0.04	0.91	0.96	0.01	0.84	0.85	2,349.76
2013 TOTALS (lbs/day mitigated)	62.52	13.33	14.36	0.01	0.04	0.91	0.96	0.01	0.84	0.85	2,349.76

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.53	0.56	0.47	0.00	0.00	0.00	672.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	9.23	13.29	102.38	0.12	24.65	4.75	13,079.56

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	9.76	13.85	102.85	0.12	24.65	4.75	13,751.56

Construction Unmitigated Detail Report:

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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
Time Slice 1/31/2011-2/25/2011 Active Days: 20	1.01	8.30	3.98	0.00	30.01	0.46	30.46	6.27	0.42	6.69	973.39
Mass Grading 01/31/2011-02/25/2011	1.01	8.30	3.98	0.00	30.01	0.46	30.46	6.27	0.42	6.69	973.39
Mass Grading Dust	0.00	0.00	0.00	0.00	30.00	0.00	30.00	6.27	0.00	6.27	0.00
Mass 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
Mass Grading On Road Diesel	0.04	0.55	0.20	0.00	0.00	0.02	0.02	0.00	0.02	0.02	84.77
Mass 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 2/28/2011-3/25/2011 Active Days: 20	0.97	7.75	3.78	0.00	**104.98**	0.43	**105.41**	**21.92**	0.40	**22.32**	888.62
Fine Grading 02/28/2011-03/25/2011	0.97	7.75	3.78	0.00	104.98	0.43	105.41	21.92	0.40	22.32	888.62
Fine Grading Dust	0.00	0.00	0.00	0.00	104.98	0.00	104.98	21.92	0.00	21.92	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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 3/28/2011-12/30/2011 Active Days: 200	2.96	**15.24**	**15.00**	0.01	0.04	**1.11**	1.14	0.01	**1.02**	1.03	2,262.86
Building 03/28/2011-04/26/2013	2.96	15.24	15.00	0.01	0.04	1.11	1.14	0.01	1.02	1.03	2,262.86
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	0.07	0.79	0.65	0.00	0.01	0.03	0.04	0.00	0.03	0.03	172.12
Building Worker Trips	0.15	0.28	4.93	0.01	0.03	0.02	0.05	0.01	0.02	0.03	668.85

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Time Slice 1/2/2012-12/31/2012 Active Days: 261	2.74	14.27	14.38	0.01	0.04	1.01	1.05	0.01	0.93	0.94	2,262.75
Building 03/28/2011-04/26/2013	2.74	14.27	14.38	0.01	0.04	1.01	1.05	0.01	0.93	0.94	2,262.75
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	0.06	0.71	0.61	0.00	0.01	0.03	0.03	0.00	0.03	0.03	172.12
Building Worker Trips	0.14	0.26	4.59	0.01	0.03	0.02	0.05	0.01	0.02	0.03	668.74
Time Slice 1/1/2013-3/15/2013 Active Days: 54	2.52	13.30	13.80	0.01	0.04	0.91	0.95	0.01	0.84	0.85	2,262.69
Building 03/28/2011-04/26/2013	2.52	13.30	13.80	0.01	0.04	0.91	0.95	0.01	0.84	0.85	2,262.69
Building Off Road Diesel	2.34	12.44	8.97	0.00	0.00	0.87	0.87	0.00	0.80	0.80	1,421.89
Building Vendor Trips	0.06	0.62	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02	172.13
Building Worker Trips	0.12	0.24	4.27	0.01	0.03	0.02	0.05	0.01	0.02	0.03	668.67
Time Slice 3/18/2013-4/26/2013 Active Days: 30	**62.52**	13.33	14.36	**0.01**	0.04	0.91	0.96	0.01	0.84	0.85	**2,349.76**
Building 03/28/2011-04/26/2013	2.52	13.30	13.80	0.01	0.04	0.91	0.95	0.01	0.84	0.85	2,262.69
Building Off Road Diesel	2.34	12.44	8.97	0.00	0.00	0.87	0.87	0.00	0.80	0.80	1,421.89
Building Vendor Trips	0.06	0.62	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02	172.13
Building Worker Trips	0.12	0.24	4.27	0.01	0.03	0.02	0.05	0.01	0.02	0.03	668.67
Coating 03/18/2013-04/26/2013	60.00	0.03	0.56	0.00	0.00	0.00	0.01	0.00	0.00	0.00	87.07
Architectural Coating	59.98	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	0.56	0.00	0.00	0.00	0.01	0.00	0.00	0.00	87.07

Phase Assumptions

Phase: Fine Grading 2/28/2011 - 3/25/2011 - GHEI Site Grading

Total Acres Disturbed: 1.5

Maximum Daily Acreage Disturbed: 1.5

Fugitive Dust Level of Detail: Low

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Onsite Cut/Fill: 762.5 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

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: Mass Grading 1/31/2011 - 2/25/2011 - GHEI Site Demo

Total Acres Disturbed: 1.5

Maximum Daily Acreage Disturbed: 1.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 20

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 3/28/2011 - 4/26/2013 - GHEI 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 3/18/2013 - 4/26/2013 - GHEI 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

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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 1/31/2011-2/25/2011 Active Days: 20	1.01	8.30	3.98	0.00	9.17	0.46	9.63	1.92	0.42	2.33	973.39
Mass Grading 01/31/2011-02/25/2011	1.01	8.30	3.98	0.00	9.17	0.46	9.63	1.92	0.42	2.33	973.39
Mass Grading Dust	0.00	0.00	0.00	0.00	9.17	0.00	9.17	1.91	0.00	1.91	0.00
Mass 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
Mass Grading On Road Diesel	0.04	0.55	0.20	0.00	0.00	0.02	0.02	0.00	0.02	0.02	84.77
Mass 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 2/28/2011-3/25/2011 Active Days: 20	0.97	7.75	3.78	0.00	32.07	0.43	32.51	6.70	0.40	7.10	888.62
Fine Grading 02/28/2011-03/25/2011	0.97	7.75	3.78	0.00	32.07	0.43	32.51	6.70	0.40	7.10	888.62
Fine Grading Dust	0.00	0.00	0.00	0.00	32.07	0.00	32.07	6.70	0.00	6.70	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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 3/28/2011-12/30/2011 Active Days: 200	2.96	**15.24**	**15.00**	0.01	0.04	**1.11**	1.14	0.01	**1.02**	1.03	2,262.86
Building 03/28/2011-04/26/2013	2.96	15.24	15.00	0.01	0.04	1.11	1.14	0.01	1.02	1.03	2,262.86
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	0.07	0.79	0.65	0.00	0.01	0.03	0.04	0.00	0.03	0.03	172.12
Building Worker Trips	0.15	0.28	4.93	0.01	0.03	0.02	0.05	0.01	0.02	0.03	668.85

Time Slice 1/2/2012-12/31/2012 Active Days: 261	2.74	14.27	14.38	0.01	0.04	1.01	1.05	0.01	0.93	0.94	2,262.75
Building 03/28/2011-04/26/2013	2.74	14.27	14.38	0.01	0.04	1.01	1.05	0.01	0.93	0.94	2,262.75
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	0.06	0.71	0.61	0.00	0.01	0.03	0.03	0.00	0.03	0.03	172.12
Building Worker Trips	0.14	0.26	4.59	0.01	0.03	0.02	0.05	0.01	0.02	0.03	668.74
Time Slice 1/1/2013-3/15/2013 Active Days: 54	2.52	13.30	13.80	0.01	0.04	0.91	0.95	0.01	0.84	0.85	2,262.69
Building 03/28/2011-04/26/2013	2.52	13.30	13.80	0.01	0.04	0.91	0.95	0.01	0.84	0.85	2,262.69
Building Off Road Diesel	2.34	12.44	8.97	0.00	0.00	0.87	0.87	0.00	0.80	0.80	1,421.89
Building Vendor Trips	0.06	0.62	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02	172.13
Building Worker Trips	0.12	0.24	4.27	0.01	0.03	0.02	0.05	0.01	0.02	0.03	668.67
Time Slice 3/18/2013-4/26/2013 Active Days: 30	**62.52**	13.33	14.36	**0.01**	0.04	0.91	0.96	0.01	0.84	0.85	**2,349.76**
Building 03/28/2011-04/26/2013	2.52	13.30	13.80	0.01	0.04	0.91	0.95	0.01	0.84	0.85	2,262.69
Building Off Road Diesel	2.34	12.44	8.97	0.00	0.00	0.87	0.87	0.00	0.80	0.80	1,421.89
Building Vendor Trips	0.06	0.62	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02	172.13
Building Worker Trips	0.12	0.24	4.27	0.01	0.03	0.02	0.05	0.01	0.02	0.03	668.67
Coating 03/18/2013-04/26/2013	60.00	0.03	0.56	0.00	0.00	0.00	0.01	0.00	0.00	0.00	87.07
Architectural Coating	59.98	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	0.56	0.00	0.00	0.00	0.01	0.00	0.00	0.00	87.07

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 2/28/2011 - 3/25/2011 - GHEI 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:

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PM10: 69% PM25: 69%

The following mitigation measures apply to Phase: Mass Grading 1/31/2011 - 2/25/2011 - GHEI Site Demo

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%

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	0.04	0.56	0.47	0.00	0.00	0.00	672.00
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	0.49						
TOTALS (lbs/day, unmitigated)	0.53	0.56	0.47	0.00	0.00	0.00	672.00

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
Medical office building	9.23	13.29	102.38	0.12	24.65	4.75	13,079.56
TOTALS (lbs/day, unmitigated)	9.23	13.29	102.38	0.12	24.65	4.75	13,079.56

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Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2013 Temperature (F): 60 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Medical office building		18.60	1000 sq ft	84.00	1,562.40	14,304.55
					1,562.40	14,304.55

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.0	0.4	99.4	0.2
Light Truck < 3750 lbs	7.0	1.4	95.7	2.9
Light Truck 3751-5750 lbs	24.0	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.8	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
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	55.2	44.8	0.0
School Bus	0.1	0.0	0.0	100.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
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
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)						
Medical office building				7.0	3.5	89.5

Operational Changes to Defaults

9/9/2010 12:15:26 PM

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 GHEI\GHEI.urb924

Project Name: Gavin Herbert Eye Institute

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)	2.96	15.24	15.00	0.01	104.98	1.11	105.41	21.92	1.02	22.32	2,262.86
2011 TOTALS (lbs/day mitigated)	2.96	15.24	15.00	0.01	32.07	1.11	32.51	6.70	1.02	7.10	2,262.86
2012 TOTALS (lbs/day unmitigated)	2.74	14.27	14.38	0.01	0.04	1.01	1.05	0.01	0.93	0.94	2,262.75
2012 TOTALS (lbs/day mitigated)	2.74	14.27	14.38	0.01	0.04	1.01	1.05	0.01	0.93	0.94	2,262.75
2013 TOTALS (lbs/day unmitigated)	62.52	13.33	14.36	0.01	0.04	0.91	0.96	0.01	0.84	0.85	2,349.76
2013 TOTALS (lbs/day mitigated)	62.52	13.33	14.36	0.01	0.04	0.91	0.96	0.01	0.84	0.85	2,349.76

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.65	0.58	2.02	0.00	0.01	0.01	674.81

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	8.31	10.96	107.53	0.15	24.65	4.75	14,494.45

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	8.96	11.54	109.55	0.15	24.66	4.76	15,169.26

Construction Unmitigated Detail Report:

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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
Time Slice 1/31/2011-2/25/2011 Active Days: 20	1.01	8.30	3.98	0.00	30.01	0.46	30.46	6.27	0.42	6.69	973.39
Mass Grading 01/31/2011-02/25/2011	1.01	8.30	3.98	0.00	30.01	0.46	30.46	6.27	0.42	6.69	973.39
Mass Grading Dust	0.00	0.00	0.00	0.00	30.00	0.00	30.00	6.27	0.00	6.27	0.00
Mass 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
Mass Grading On Road Diesel	0.04	0.55	0.20	0.00	0.00	0.02	0.02	0.00	0.02	0.02	84.77
Mass 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 2/28/2011-3/25/2011 Active Days: 20	0.97	7.75	3.78	0.00	**104.98**	0.43	**105.41**	**21.92**	0.40	**22.32**	888.62
Fine Grading 02/28/2011-03/25/2011	0.97	7.75	3.78	0.00	104.98	0.43	105.41	21.92	0.40	22.32	888.62
Fine Grading Dust	0.00	0.00	0.00	0.00	104.98	0.00	104.98	21.92	0.00	21.92	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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 3/28/2011-12/30/2011 Active Days: 200	2.96	**15.24**	**15.00**	0.01	0.04	**1.11**	1.14	0.01	**1.02**	1.03	2,262.86
Building 03/28/2011-04/26/2013	2.96	15.24	15.00	0.01	0.04	1.11	1.14	0.01	1.02	1.03	2,262.86
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	0.07	0.79	0.65	0.00	0.01	0.03	0.04	0.00	0.03	0.03	172.12
Building Worker Trips	0.15	0.28	4.93	0.01	0.03	0.02	0.05	0.01	0.02	0.03	668.85

Time Slice 1/2/2012-12/31/2012 Active Days: 261	2.74	14.27	14.38	0.01	0.04	1.01	1.05	0.01	0.93	0.94	2,262.75
Building 03/28/2011-04/26/2013	2.74	14.27	14.38	0.01	0.04	1.01	1.05	0.01	0.93	0.94	2,262.75
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	0.06	0.71	0.61	0.00	0.01	0.03	0.03	0.00	0.03	0.03	172.12
Building Worker Trips	0.14	0.26	4.59	0.01	0.03	0.02	0.05	0.01	0.02	0.03	668.74
Time Slice 1/1/2013-3/15/2013 Active Days: 54	2.52	13.30	13.80	0.01	0.04	0.91	0.95	0.01	0.84	0.85	2,262.69
Building 03/28/2011-04/26/2013	2.52	13.30	13.80	0.01	0.04	0.91	0.95	0.01	0.84	0.85	2,262.69
Building Off Road Diesel	2.34	12.44	8.97	0.00	0.00	0.87	0.87	0.00	0.80	0.80	1,421.89
Building Vendor Trips	0.06	0.62	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02	172.13
Building Worker Trips	0.12	0.24	4.27	0.01	0.03	0.02	0.05	0.01	0.02	0.03	668.67
Time Slice 3/18/2013-4/26/2013 Active Days: 30	**62.52**	13.33	14.36	**0.01**	0.04	0.91	0.96	0.01	0.84	0.85	**2,349.76**
Building 03/28/2011-04/26/2013	2.52	13.30	13.80	0.01	0.04	0.91	0.95	0.01	0.84	0.85	2,262.69
Building Off Road Diesel	2.34	12.44	8.97	0.00	0.00	0.87	0.87	0.00	0.80	0.80	1,421.89
Building Vendor Trips	0.06	0.62	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02	172.13
Building Worker Trips	0.12	0.24	4.27	0.01	0.03	0.02	0.05	0.01	0.02	0.03	668.67
Coating 03/18/2013-04/26/2013	60.00	0.03	0.56	0.00	0.00	0.00	0.01	0.00	0.00	0.00	87.07
Architectural Coating	59.98	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	0.56	0.00	0.00	0.00	0.01	0.00	0.00	0.00	87.07

Phase Assumptions

Phase: Fine Grading 2/28/2011 - 3/25/2011 - GHEI Site Grading

Total Acres Disturbed: 1.5

Maximum Daily Acreage Disturbed: 1.5

Fugitive Dust Level of Detail: Low

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Onsite Cut/Fill: 762.5 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

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: Mass Grading 1/31/2011 - 2/25/2011 - GHEI Site Demo

Total Acres Disturbed: 1.5

Maximum Daily Acreage Disturbed: 1.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 20

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 3/28/2011 - 4/26/2013 - GHEI 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 3/18/2013 - 4/26/2013 - GHEI 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

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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 1/31/2011-2/25/2011 Active Days: 20	1.01	8.30	3.98	0.00	9.17	0.46	9.63	1.92	0.42	2.33	973.39
Mass Grading 01/31/2011-02/25/2011	1.01	8.30	3.98	0.00	9.17	0.46	9.63	1.92	0.42	2.33	973.39
Mass Grading Dust	0.00	0.00	0.00	0.00	9.17	0.00	9.17	1.91	0.00	1.91	0.00
Mass 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
Mass Grading On Road Diesel	0.04	0.55	0.20	0.00	0.00	0.02	0.02	0.00	0.02	0.02	84.77
Mass 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 2/28/2011-3/25/2011 Active Days: 20	0.97	7.75	3.78	0.00	32.07	0.43	32.51	6.70	0.40	7.10	888.62
Fine Grading 02/28/2011-03/25/2011	0.97	7.75	3.78	0.00	32.07	0.43	32.51	6.70	0.40	7.10	888.62
Fine Grading Dust	0.00	0.00	0.00	0.00	32.07	0.00	32.07	6.70	0.00	6.70	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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 3/28/2011-12/30/2011 Active Days: 200	2.96	**15.24**	**15.00**	0.01	0.04	**1.11**	1.14	0.01	**1.02**	1.03	2,262.86
Building 03/28/2011-04/26/2013	2.96	15.24	15.00	0.01	0.04	1.11	1.14	0.01	1.02	1.03	2,262.86
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	0.07	0.79	0.65	0.00	0.01	0.03	0.04	0.00	0.03	0.03	172.12
Building Worker Trips	0.15	0.28	4.93	0.01	0.03	0.02	0.05	0.01	0.02	0.03	668.85

Time Slice 1/2/2012-12/31/2012 Active Days: 261	2.74	14.27	14.38	0.01	0.04	1.01	1.05	0.01	0.93	0.94	2,262.75
Building 03/28/2011-04/26/2013	2.74	14.27	14.38	0.01	0.04	1.01	1.05	0.01	0.93	0.94	2,262.75
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	0.06	0.71	0.61	0.00	0.01	0.03	0.03	0.00	0.03	0.03	172.12
Building Worker Trips	0.14	0.26	4.59	0.01	0.03	0.02	0.05	0.01	0.02	0.03	668.74
Time Slice 1/1/2013-3/15/2013 Active Days: 54	2.52	13.30	13.80	0.01	0.04	0.91	0.95	0.01	0.84	0.85	2,262.69
Building 03/28/2011-04/26/2013	2.52	13.30	13.80	0.01	0.04	0.91	0.95	0.01	0.84	0.85	2,262.69
Building Off Road Diesel	2.34	12.44	8.97	0.00	0.00	0.87	0.87	0.00	0.80	0.80	1,421.89
Building Vendor Trips	0.06	0.62	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02	172.13
Building Worker Trips	0.12	0.24	4.27	0.01	0.03	0.02	0.05	0.01	0.02	0.03	668.67
Time Slice 3/18/2013-4/26/2013 Active Days: 30	**62.52**	13.33	14.36	**0.01**	0.04	0.91	0.96	0.01	0.84	0.85	**2,349.76**
Building 03/28/2011-04/26/2013	2.52	13.30	13.80	0.01	0.04	0.91	0.95	0.01	0.84	0.85	2,262.69
Building Off Road Diesel	2.34	12.44	8.97	0.00	0.00	0.87	0.87	0.00	0.80	0.80	1,421.89
Building Vendor Trips	0.06	0.62	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02	172.13
Building Worker Trips	0.12	0.24	4.27	0.01	0.03	0.02	0.05	0.01	0.02	0.03	668.67
Coating 03/18/2013-04/26/2013	60.00	0.03	0.56	0.00	0.00	0.00	0.01	0.00	0.00	0.00	87.07
Architectural Coating	59.98	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	0.56	0.00	0.00	0.00	0.01	0.00	0.00	0.00	87.07

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 2/28/2011 - 3/25/2011 - GHEI 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:

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PM10: 69% PM25: 69%

The following mitigation measures apply to Phase: Mass Grading 1/31/2011 - 2/25/2011 - GHEI Site Demo

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%

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	0.04	0.56	0.47	0.00	0.00	0.00	672.00
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	0.49						
TOTALS (lbs/day, unmitigated)	0.65	0.58	2.02	0.00	0.01	0.01	674.81

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
Medical office building	8.31	10.96	107.53	0.15	24.65	4.75	14,494.45
TOTALS (lbs/day, unmitigated)	8.31	10.96	107.53	0.15	24.65	4.75	14,494.45

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Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2013 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Medical office building		18.60	1000 sq ft	84.00	1,562.40	14,304.55
					1,562.40	14,304.55

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.0	0.4	99.4	0.2
Light Truck < 3750 lbs	7.0	1.4	95.7	2.9
Light Truck 3751-5750 lbs	24.0	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.8	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
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	55.2	44.8	0.0
School Bus	0.1	0.0	0.0	100.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
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
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)						
Medical office building				7.0	3.5	89.5

Operational Changes to Defaults

APPENDIX B

GREENHOUSE GAS ASSESSMENT

Greenhouse Gas Assessment For:

GAVIN HERBERT EYE INSTITUTE

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.
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27812 El Lazo Road
Laguna Niguel, CA 92677
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September 29, 2010
Report #517001GG1

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1.0 Background Information

1.1 Project Description

The proposed Gavin Herbert Eye Institute (GHEI) would include a three to floor story building with 84,000 gross square feet (gsf) and 43,400 assignable square feet (asf) to be used by the University of California, Irvine (UCI) School of Medicine's Ophthalmology Department. The project site is approximately 1.5-acres located near the southwest corner of Bison Avenue and Health Sciences Drive located between Parking Lot 83 and Bison Avenue within the Biomedical Research Center (BRC) of the UCI Heath Sciences Complex. Exhibit 1 presents a vicinity map showing the project location and Exhibit 2 shows an aerial photograph of the project site. The existing site is currently used as a temporary parking area.

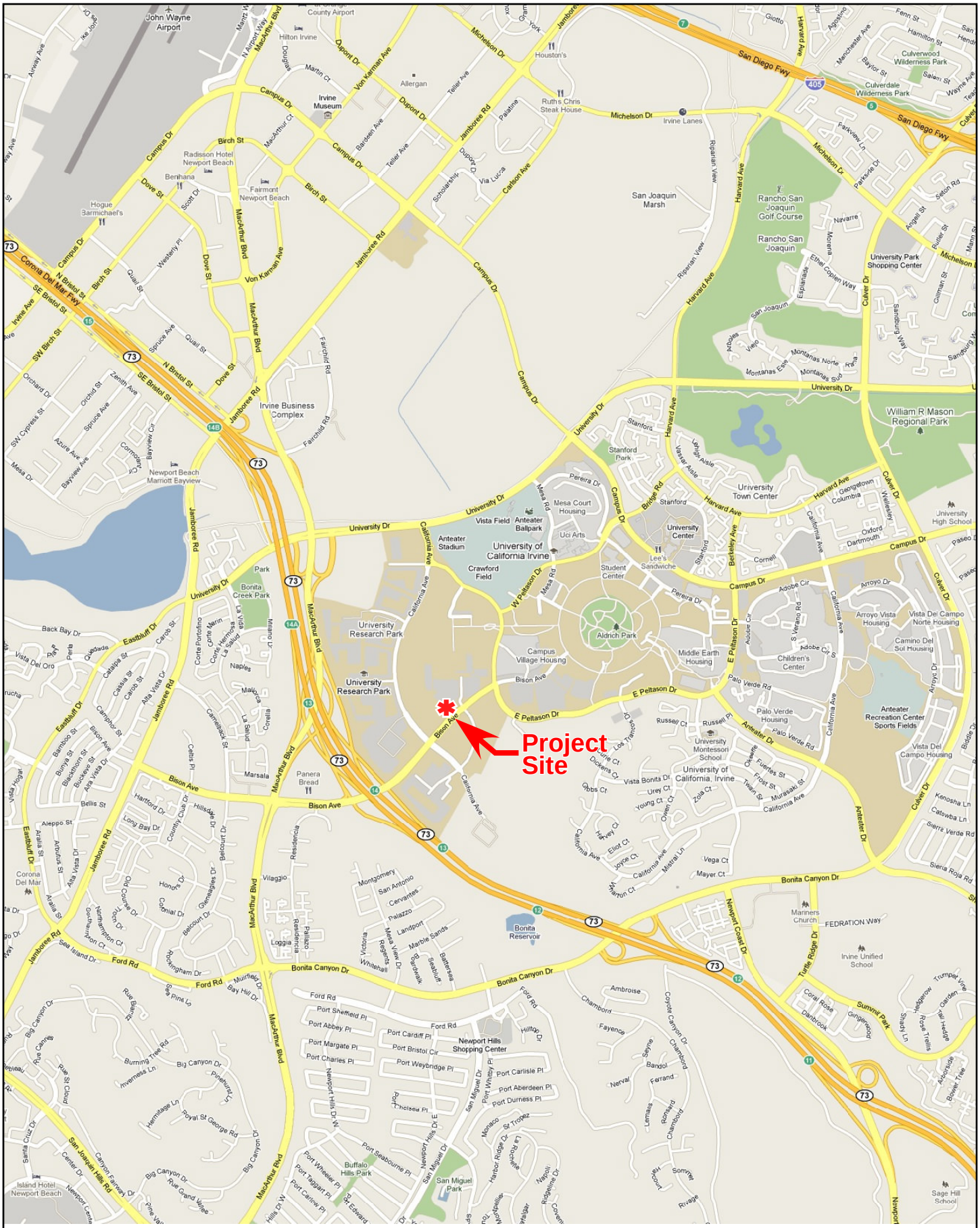
Existing clinical and surgical functions, currently housed at the Gottschalk Medical Plaza located approximately 0.30 miles from the project site, would be relocated to the project site. Approximately, 4,700 asf of the building would be used for Ambulatory Surgery, 6,000 asf for Ophthalmology Clinics, 800 asf for Optical Sales. Approximately, 31,900 asf of the proposed building would initially remain shell (i.e., unfinished) space which would be outfitted in the future to serve additional UCI Health Services functions. For this analysis, it was assumed that this shell space would be utilized as medical clinic space to estimate the impacts of the building when fully occupied.

1.2 Greenhouse Gases and Climate Change

1.2.1 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].



Mestre Greve Associates

Exhibit 1
Vicinity Map

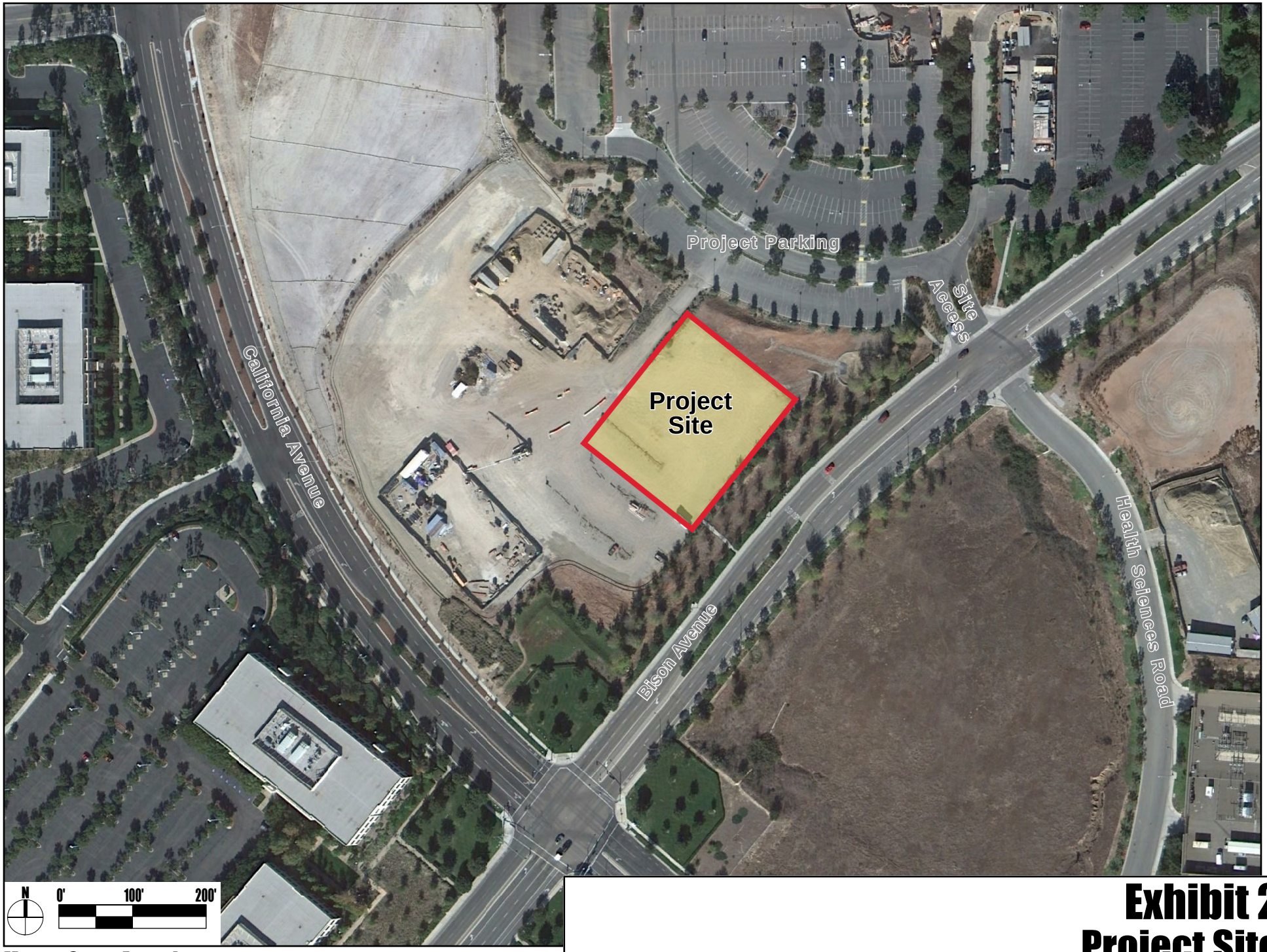


Exhibit 2
Project Site

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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

1.2.2 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.

1.2.3 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.

1.3 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.

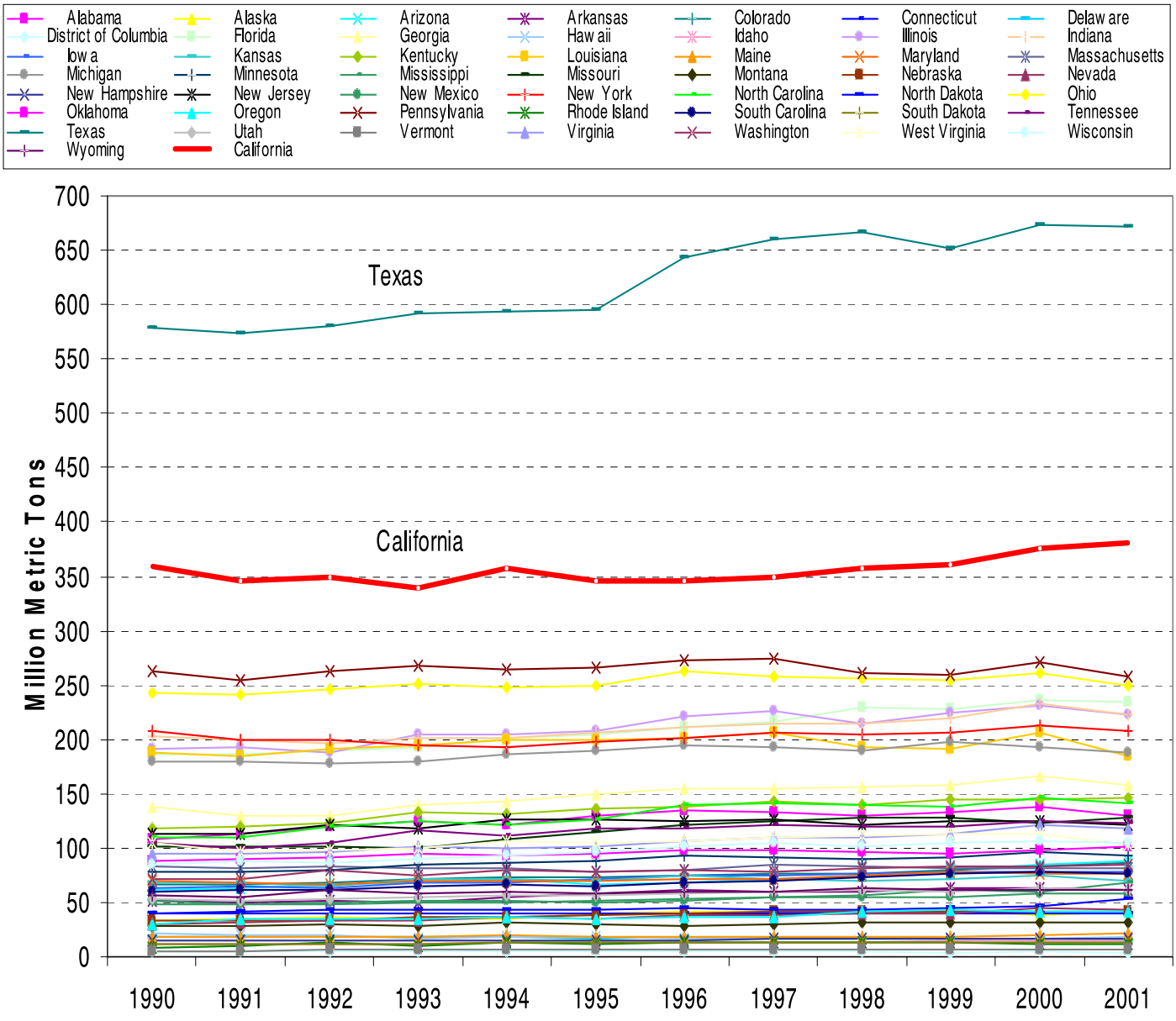
Table 2
Top Ten CO_2 Producing Nations between 1990-2004
(Emissions in Million Metric Tons (MMT) CO_2EQ)

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

1.4 Sources of Greenhouse Gas in California

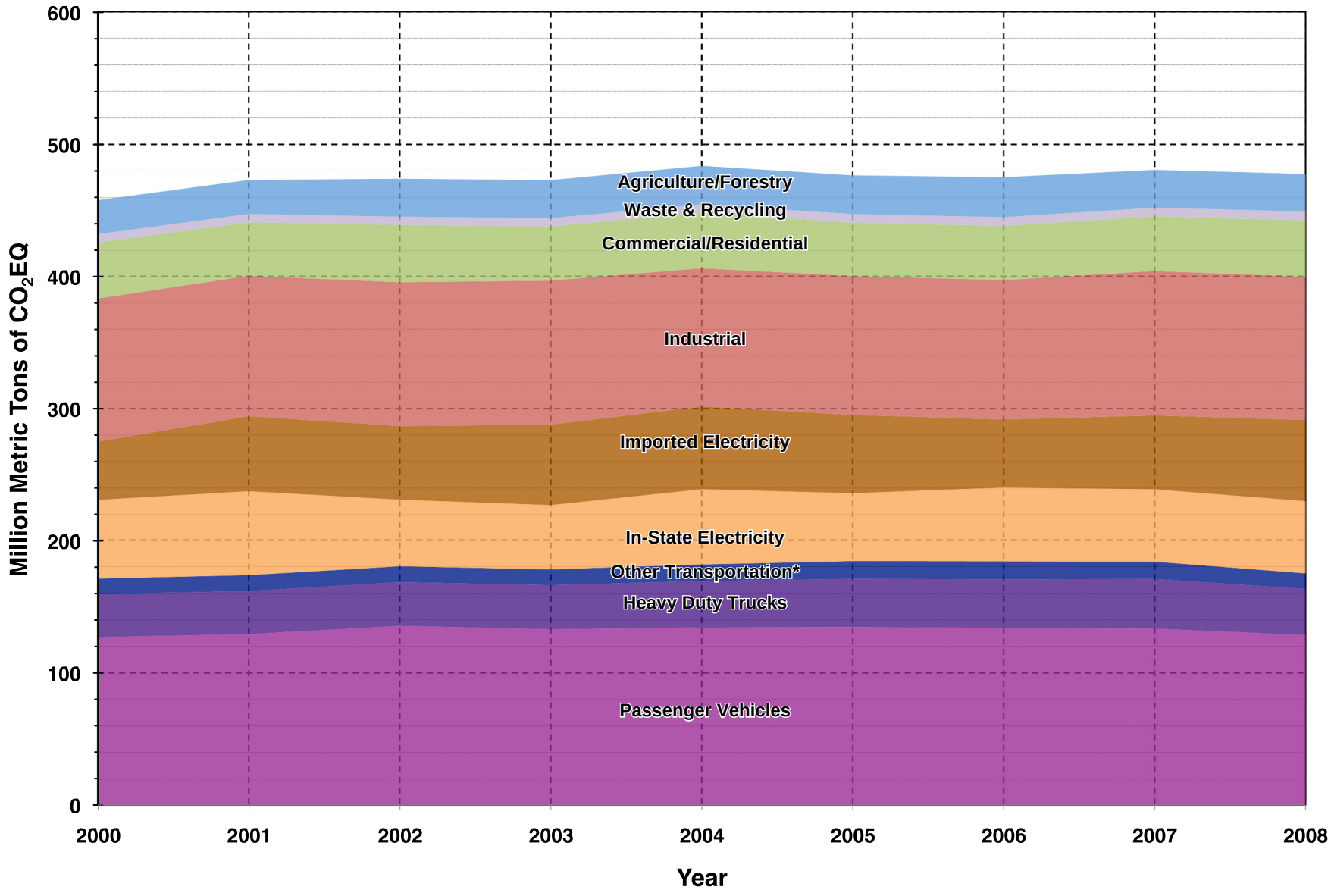
The California Energy Commission ("CEC") categorizes GHG generation by source into five broad categories. The categories are:

- **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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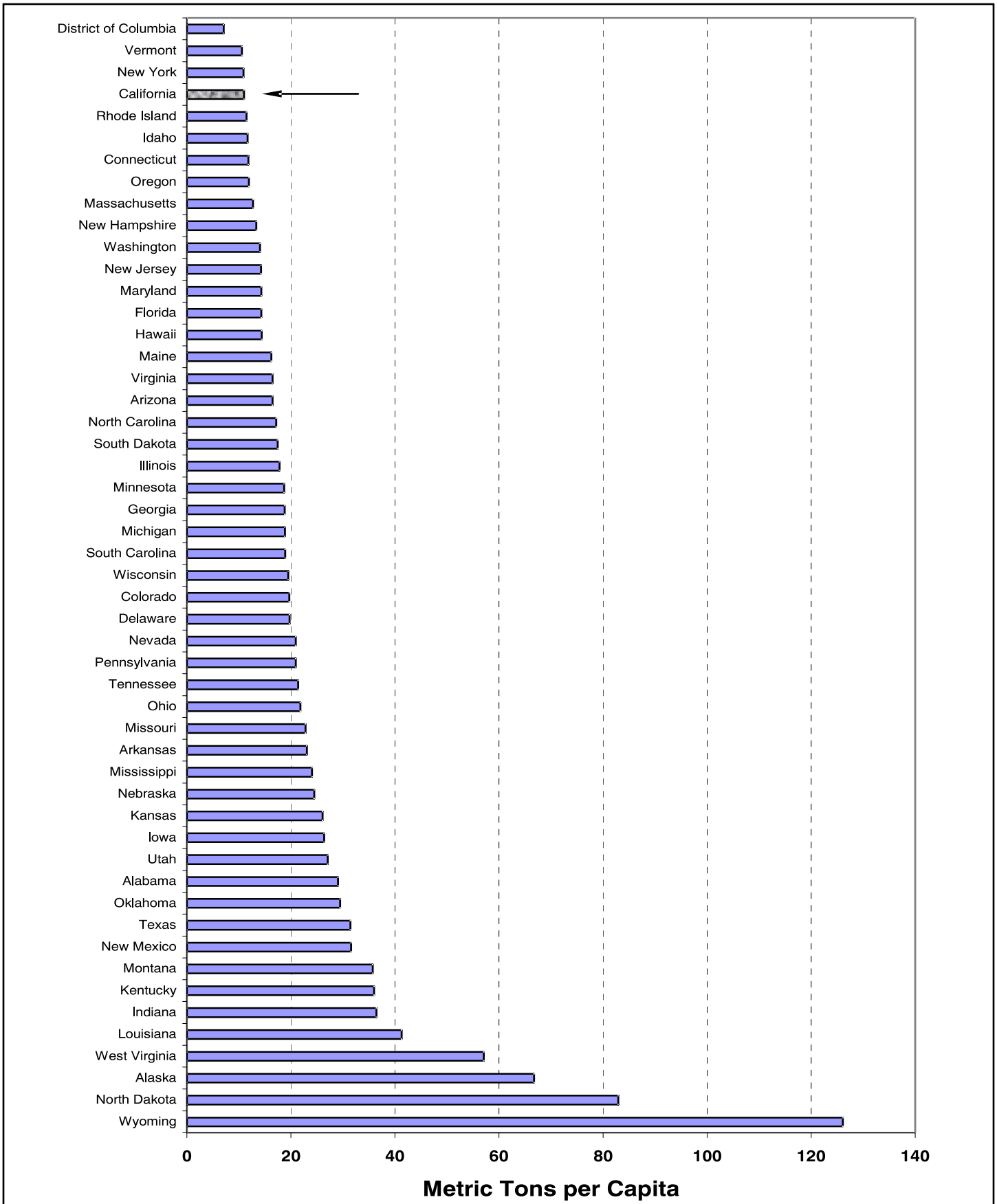

Source: California Energy Commission, "Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004," December 2006

Exhibit 5 - CO_2 Emissions From Fossil Fuels Per Capita (2001)

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1.5 Regulatory Framework

1.5.1 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*.

1.5.2 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 explaination 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.

1.5.3 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.

1.5.4 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. 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 Gavin Herbert Eye Institute Building is anticipated to begin in February 2011 and take 27 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
Demolition	January 31 2011	4	February 25, 2011
Grading	February 28, 2011	4	March 25, 2011
Building Construction	March 28, 2011	109	April 26, 2013
Arch Coating	March 18, 2013	6	April 26, 2013
Total Duration		**117 (27 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.

Demolition is the removal of the existing improvements and hardscape to prepare the site for the grading and construction of the proposed GHEI building. This work will occur over approximately 1.5-acres of the project site is estimated to take four weeks. Equipment assumed to be utilized during demolition includes (1) tractor/loader/backhoe and (1) water truck. The emissions calculation includes 1 daily haul truck trips with a round trip distance of 20 miles. The URBEMIS2007 default assumptions were used to estimate emissions from worker trips.

Grading is the grading of project site in preparation of building construction. This work will occur over the approximately 1.5-acres of the project site and is estimated to take four weeks. There will be no import or export of materials required and approximately 15,250 cubic yards of material is expected to be moved on site. 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 GHEI 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 dependant 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 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 1,562 trips per day based on 43,400 assignable square feet generating 36 trips per day.

The most notable greenhouse gases (GHG) are nitrous oxide (N_2O), methane (CH_4) and carbon dioxide. CO_2. The URBEMIS model only calculates CO_2 emissions. For most sources emission rates N_2O are not available and they appear to be minuscule accounting for only 0.1% or less of the CO2EQ greenhouse gas emissions for this type of project. As a result, N_2O emissions are not included in this analysis. CH_4 emissions are also a minor portion of the total CO2EQ emissions. For passenger vehicles CH_4 represents less than 0.2% of the total CO2EQ emissions. For diesel trucks CH_4 emissions represent less than 0.8% of the total CO2EQ emissions. Only CO_2 emissions have been quantified in this analysis.

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	
Site Demolition	8.8
Site Grading	8.1
Construction 2011	205.3
2012	
Construction 2012	267.9
2013	
Construction 2013	86.2
Painting	1.2
Total Construction CO_2 Emissions (MT)	**577.5**
Project Life Average Annual CO_2 Emission (MT)*	**19.2**

* 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 (2013). 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	2,321.6
Natural Gas Combustion	111.3
Landscaping	0.5
Electrical Generation	378.9
Total Annual Emissions	**2,812**
Annualized Construction Emissions	**19.2**
Total Annual Project Emissions	**2,831**
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 significance threshold of 3,000 metric tons per year. In fact, the total project emissions are less than this threshold. Thus, no project specific mitigation measures are required to construct the project. Additionally, as discussed in Section 1.5.4 UCI is implementing a climate action plan which is compliant with AB 32 described in Section 1.5.2 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 Recommended Reduction Strategies

As stated above, the analysis contained herein indicates that no mitigation measures are required to construct the project. However, as GHG emissions are a significant global, national, state, and local factor contributing to climate change the University of California, Irvine should consider additional actions to reduce GHG emissions for all projects. Potential GHG emissions strategies suggested by CARB in their Potential Performance Standards and Measures and from the Attorney General's Office comment letter on the Coyote Valley Specific Plan DEIR were reviewed for applicability to the proposed project. Many of the measures, which the project would either meet or exceed, are already part of the University's Climate Action Plan and Sustainability Policies. The applicable measures include, but are not limited to the list of potential measures and programs provided below.

4.1 CARB's Staff Proposal

Construction

- Recycle and/or salvage at least 75% of non-hazardous construction and demolition debris by weight (residential) or by weight in volume (commercial).
- 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.
- Provide alternative transportation mode options or incentives for workers to and from worksite

Energy

- Meet CEC's voluntary Tier II Energy Efficiency standards in effect at time building construction begins (Currently 30% reduction in combined space heating, cooling and water heating energy compared to 2008 Title 24 Standards) *Note that the University has committed to energy efficiency 20% better than Title 24 standards with a goal for a reduction of 30%)*

Water

- Reduce indoor potable water use by at least 20%.
- Reduce outdoor potable water use for landscape irrigation by at least 50%.

Waste

- Where local recycling and/or composting programs exist design facilities and structures to encourage participation in program, and install adequate, accessible recycling and composting receptacles in common or public areas, and Provide easy access to central recycling and composting receptacles or collections areas

Residential Transportation

- Demonstrate that average vehicle miles traveled per household per year (VMT/hh-yr) is projected not to exceed 14,000 VMT/hh-yr.
- Represents carbon-efficient, compact development with close proximity to transit and variety of services.

4.2 Attorney General's List

The applicability of the listed measures to the proposed project is provided in italicized text.

Transportation

- Coordinate controlled intersections so that traffic passes more efficiently through congested areas. Where signals are installed, require the use of Light Emitting Diode (LED) traffic lights. *The project does not affect any intersections and therefore this is not applicable to the project.*
- Set specific limits on idling time for commercial vehicles, including delivery and construction vehicles. *CARB regulations limit idling of diesel vehicles to 5 minutes. Air quality mitigation measure AIR-2B from the LDRP EIR applies to this project and requires construction equipment to be shut down if idling is anticipated to last for more than 5 minutes.*
- Require construction vehicles to use retrofit emission control devices, such as diesel oxidation catalysts and diesel particulate filters verified by the California Air Resources Board (CARB). *These measures do not reduce the amount of GHG emission from the equipment but do reduce criteria air pollutant emissions. Further, CARB has developed regulations to require construction contractors to meet fleet average emissions targets using these devices and/or new equipment.*
- Promote ride sharing programs *e.g.*, by designating a certain percentage of parking spaces for high-occupancy vehicles, providing larger parking spaces to accommodate vans used for ride-sharing, and designating adequate passenger loading and unloading and waiting areas. *This is done by the University.*
- Create car-sharing programs. Accommodations for such programs include providing parking spaces for the car-share vehicles at convenient locations accessible by public transportation. *This is done by the University as a part of its CAP*
- Require clean alternative fuels and electric vehicles. *The university has converted it's shuttle bus fleet to use 100% biodiesel and retrofitted catalytic converters to more than reduce NO_X emission increase associated with biodiesel. The University has committed to retrofit other fleet vehicles where feasible and phase out vehicles where retrofit is not feasible for low-carbon alternatives.*
- Develop the necessary infrastructure to encourage the use of alternative fuel vehicles (*e.g.*, electric vehicle charging facilities and conveniently located alternative fueling stations). *This is done by the University.*
- Increase the cost of driving and parking private vehicles by imposing tolls, parking fees, and residential parking permit limits. *The University's CAP includes measures to reduce "commuter students" and minimize commuting. Note that in some circumstances these measures can result in more travel due to users being dropped off and picked up at their destination (4 one-way trips) rather than parking at their destination (2 one-way trips).*
- Develop transportation policies that give funding preference to public transit. *This is done by the University.*
- Design a regional transportation center where public transportation of various modes intersects. *This is not applicable to the proposed project.*

- Encourage the use of public transit systems by enhancing safety and cleanliness on vehicles and in and around stations. *This is done by the University.*
- Assess transportation impact fees on new development in order to facilitate and increase public transit service. *This is not applicable to the proposed project.*
- Provide shuttle service to public transit. *This is done by the University.*
- Offer public transit incentives. *This is done by the University as a part of its Sustainability Policy.*
- Incorporate bicycle lanes into street systems in regional transportation plans, new subdivisions, and large developments. *This is done by the University.*
- Create bicycle lanes and walking paths directed to the location of schools and other logical points of destination and provide adequate bicycle parking *This is done by the University.*
- Require commercial projects to include facilities on-site to encourage employees to bicycle or walk to work. *This is not applicable to the proposed project.*
- Provide public education and publicity about public transportation services. *This is done by the University as a part of its CAP.*

Energy Efficiency and Renewable Energy

- Require energy efficient design for buildings. This may include strengthening local building codes for new construction and renovation to require a higher level of energy efficiency. *This is done by the University as a part of its CAP.*
- Adopt a "Green Building Program" to promote green building standards. *This is done by the University as a part of its CAP.*
- Fund and schedule energy efficiency "tune-ups" of existing buildings by checking, repairing, and readjusting heating, ventilation, air conditioning, lighting, hot water equipment, insulation and weatherization. (Facilitating or funding the improvement of energy efficiency in existing buildings could offset in part the global warming impacts of new development.) *This is done by the University as a part of its CAP.*
- Provide individualized energy management services for large energy users. *This is done by the University as a part of its CAP.*
- Require the use of energy efficient appliances and office equipment. *This is done by the University as a part of its Sustainability Policy.*
- Fund incentives and technical assistance for lighting efficiency. *This is done by the University as a part of its Sustainability Policy.*
- Require that projects use efficient lighting. (Fluorescent lighting uses approximately 75% less energy than incandescent lighting to deliver the same amount of light.) *This is done by the University as a part of its CAP.*
- Require measures that reduce the amount of water sent to the sewer system. (Reduction in water volume sent to the sewer system means less water has to be treated and pumped to the end user, thereby saving energy.) *This is done by the University as a part of its Sustainability Policy.*
- Incorporate on-site renewable energy production (through, *e.g.*,participation in the California Energy Commission's New Solar Homes Partnership). Require project

proponents to install solar panels, water reuse systems, and/or other systems to capture energy sources that would otherwise be wasted. *This is done by the University as a part of its Sustainability Policy.*

- Streamline permitting and provide public information to facilitate accelerated construction of solar and wind power. *As a part of its CAP the University has committed to implementing renewable energy sources*

- Fund incentives to encourage the use of energy efficient equipment and vehicles. *This is done by the University as a part of its Sustainability Policy.*

- Provide public education and publicity about energy efficiency programs and incentives. *This is done by the University as a part of its CAP.*

Land Use Measures

- Encourage mixed-use and high-density development to reduce vehicle trips, promote alternatives to vehicle travel and promote efficient delivery of services and goods. (A city or county could promote "smart" development by reducing developer fees or granting property tax credits for qualifying projects.) *This is not applicable to the proposed project.*
- Discourage "leapfrog" development. Enact ordinances and programs to limit sprawl. *This is not applicable to the proposed project.*
- Incorporate public transit into project design. *This is done by the University as a part of its CAP.*
- Require measures that take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use. *This would be implemented within the project as feasible.*
- Preserve and create open space and parks. Preserve existing trees and require the planting of replacement trees for those removed in construction. *This is done by the University as a part of its CAP.*
- Impose measures to address the "urban heat island" effect by, *e.g.*, requiring lightcolored and reflective roofing materials and paint; light-colored roads and parking lots; shade trees in parking lots; and shade trees on the south and west sides of new or renovated buildings. *This would be implemented within the project as feasible*
- Facilitate "brownfield" development. (Brownfields are more likely to be located near existing public transportation and jobs.) *This is not applicable to the proposed project.*
- Require pedestrian-only streets and plazas within developments, and destinations that may be reached conveniently by public transportation, walking, or bicycling. *This is done by the University.*

Solid Waste Measures

- Require projects to reuse and recycle construction and demolition waste. *This is done by the University.*• Implement or expand city or county-wide recycling and composting programs for residents and businesses. *The University has implemented waste management programs as part of its CAP.*

- Increase areas served by recycling programs. *This is not applicable to the proposed project.*
- Extend the types of recycling services offered (*e.g.*, to include food and green waste recycling). *The University has implemented waste management programs as part of its CAP.*
- Establish methane recovery in local landfills and wastewater treatment plants to generate electricity. *This is not applicable to the proposed project.*
- Provide public education and publicity about recycling services. *This is done by the University as a part of its CAP.*

5.0 References

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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 GHEI\GHEI.urb924

Project Name: Gavin Herbert Eye Institute

Project Location: Orange County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

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)	0.32	1.68	1.58	0.00	1.35	0.12	1.47	0.28	0.11	0.39	244.91
2011 TOTALS (tons/year mitigated)	0.32	1.68	1.58	0.00	0.42	0.12	0.54	0.09	0.11	0.20	244.91
Percent Reduction	0.00	0.00	0.00	0.00	69.25	0.00	63.63	69.11	0.00	49.81	0.00
2012 TOTALS (tons/year unmitigated)	0.36	1.86	1.88	0.00	0.00	0.13	0.14	0.00	0.12	0.12	295.29
2012 TOTALS (tons/year mitigated)	0.36	1.86	1.88	0.00	0.00	0.13	0.14	0.00	0.12	0.12	295.29
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013 TOTALS (tons/year unmitigated)	1.01	0.56	0.59	0.00	0.00	0.04	0.04	0.00	0.04	0.04	96.34
2013 TOTALS (tons/year mitigated)	1.01	0.56	0.59	0.00	0.00	0.04	0.04	0.00	0.04	0.04	96.34
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.12	0.10	0.37	0.00	0.00	0.00	123.15

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	1.57	2.14	19.31	0.03	4.50	0.87	2,559.16

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	1.69	2.24	19.68	0.03	4.50	0.87	2,682.31

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

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

2011	0.32	1.68	1.58	0.00	1.35	0.12	1.47	0.28	0.11	0.39	244.91
Mass Grading 01/31/2011-02/25/2011	0.01	0.08	0.04	0.00	0.30	0.00	0.30	0.06	0.00	0.07	9.73
Mass Grading Dust	0.00	0.00	0.00	0.00	0.30	0.00	0.30	0.06	0.00	0.06	0.00
Mass Grading Off Road Diesel	0.01	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.26
Mass Grading On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85
Mass Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62
Fine Grading 02/28/2011-03/25/2011	0.01	0.08	0.04	0.00	1.05	0.00	1.05	0.22	0.00	0.22	8.89
Fine Grading Dust	0.00	0.00	0.00	0.00	1.05	0.00	1.05	0.22	0.00	0.22	0.00
Fine Grading Off Road Diesel	0.01	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.26
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62
Building 03/28/2011-04/26/2013	0.30	1.52	1.50	0.00	0.00	0.11	0.11	0.00	0.10	0.10	226.29
Building Off Road Diesel	0.27	1.42	0.94	0.00	0.00	0.11	0.11	0.00	0.10	0.10	142.19
Building Vendor Trips	0.01	0.08	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.21
Building Worker Trips	0.01	0.03	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.89
2012	0.36	1.86	1.88	0.00	0.00	0.13	0.14	0.00	0.12	0.12	295.29
Building 03/28/2011-04/26/2013	0.36	1.86	1.88	0.00	0.00	0.13	0.14	0.00	0.12	0.12	295.29
Building Off Road Diesel	0.33	1.74	1.20	0.00	0.00	0.13	0.13	0.00	0.12	0.12	185.56
Building Vendor Trips	0.01	0.09	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.46
Building Worker Trips	0.02	0.03	0.60	0.00	0.00	0.00	0.01	0.00	0.00	0.00	87.27

2013	1.01	0.56	0.59	0.00	0.00	0.04	0.04	0.00	0.04	0.04	96.34
Building 03/28/2011-04/26/2013	0.11	0.56	0.58	0.00	0.00	0.04	0.04	0.00	0.04	0.04	95.03
Building Off Road Diesel	0.10	0.52	0.38	0.00	0.00	0.04	0.04	0.00	0.03	0.03	59.72
Building Vendor Trips	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.23
Building Worker Trips	0.01	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.08
Coating 03/18/2013-04/26/2013	0.90	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31
Architectural Coating	0.90	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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31

Phase Assumptions

Phase: Fine Grading 2/28/2011 - 3/25/2011 - GHEI Site Grading

Total Acres Disturbed: 1.5

Maximum Daily Acreage Disturbed: 1.5

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 762.5 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

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: Mass Grading 1/31/2011 - 2/25/2011 - GHEI Site Demo

Total Acres Disturbed: 1.5

Maximum Daily Acreage Disturbed: 1.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 20

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 3/28/2011 - 4/26/2013 - GHEI 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 3/18/2013 - 4/26/2013 - GHEI 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	0.32	1.68	1.58	0.00	0.42	0.12	0.54	0.09	0.11	0.20	244.91
Mass Grading 01/31/2011-02/25/2011	0.01	0.08	0.04	0.00	0.09	0.00	0.10	0.02	0.00	0.02	9.73
Mass Grading Dust	0.00	0.00	0.00	0.00	0.09	0.00	0.09	0.02	0.00	0.02	0.00
Mass Grading Off Road Diesel	0.01	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.26
Mass Grading On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85
Mass Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62
Fine Grading 02/28/2011-03/25/2011	0.01	0.08	0.04	0.00	0.32	0.00	0.33	0.07	0.00	0.07	8.89
Fine Grading Dust	0.00	0.00	0.00	0.00	0.32	0.00	0.32	0.07	0.00	0.07	0.00
Fine Grading Off Road Diesel	0.01	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.26
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62
Building 03/28/2011-04/26/2013	0.30	1.52	1.50	0.00	0.00	0.11	0.11	0.00	0.10	0.10	226.29
Building Off Road Diesel	0.27	1.42	0.94	0.00	0.00	0.11	0.11	0.00	0.10	0.10	142.19
Building Vendor Trips	0.01	0.08	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.21
Building Worker Trips	0.01	0.03	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.89
2012	0.36	1.86	1.88	0.00	0.00	0.13	0.14	0.00	0.12	0.12	295.29
Building 03/28/2011-04/26/2013	0.36	1.86	1.88	0.00	0.00	0.13	0.14	0.00	0.12	0.12	295.29
Building Off Road Diesel	0.33	1.74	1.20	0.00	0.00	0.13	0.13	0.00	0.12	0.12	185.56
Building Vendor Trips	0.01	0.09	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.46
Building Worker Trips	0.02	0.03	0.60	0.00	0.00	0.00	0.01	0.00	0.00	0.00	87.27

2013	1.01	0.56	0.59	0.00	0.00	0.04	0.04	0.00	0.04	0.04	96.34
Building 03/28/2011-04/26/2013	0.11	0.56	0.58	0.00	0.00	0.04	0.04	0.00	0.04	0.04	95.03
Building Off Road Diesel	0.10	0.52	0.38	0.00	0.00	0.04	0.04	0.00	0.03	0.03	59.72
Building Vendor Trips	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.23
Building Worker Trips	0.01	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.08
Coating 03/18/2013-04/26/2013	0.90	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31
Architectural Coating	0.90	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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 2/28/2011 - 3/25/2011 - GHEI 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%

The following mitigation measures apply to Phase: Mass Grading 1/31/2011 - 2/25/2011 - GHEI Site Demo

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	0.01	0.10	0.09	0.00	0.00	0.00	122.64
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	0.09						
TOTALS (tons/year, unmitigated)	0.12	0.10	0.37	0.00	0.00	0.00	123.15

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
Medical office building	1.57	2.14	19.31	0.03	4.50	0.87	2,559.16
TOTALS (tons/year, unmitigated)	1.57	2.14	19.31	0.03	4.50	0.87	2,559.16

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2013 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
Medical office building		18.60	1000 sq ft	84.00	1,562.40	14,304.55
					1,562.40	14,304.55

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.0	0.4	99.4	0.2
Light Truck < 3750 lbs	7.0	1.4	95.7	2.9
Light Truck 3751-5750 lbs	24.0	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.8	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
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	55.2	44.8	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)						
Medical office building				7.0	3.5	89.5

Operational Changes to Defaults