UCI

FINAL

TIERED INITIAL STUDY &

MITIGATED NEGATIVE DECLARATION

Bison Avenue Surface Parking Lot

August 2017

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1.1 Project Title

Bison Avenue Surface Parking Lot

1.2 Lead Agency Name and Address

University of California, Irvine
Office of Environmental Planning and Sustainability
4199 Campus Drive, Suite 380, Irvine, CA 92697-2325

1.3 Contact Person and Phone Number

Lindsey Hashimoto, Senior Planner
(949) 824-8692

1.4 Project Location

The University of California, Irvine (UCI) is located in the city of Irvine, Orange County, California approximately four miles inland from the Pacific Ocean (see Exhibit 1-1). The project site is located in the West Campus of UCI and is bound by Bison Avenue to the northwest, California Avenue to the southwest, and Health Sciences Road to the east.

1.5 Custodian of the Administrative Record

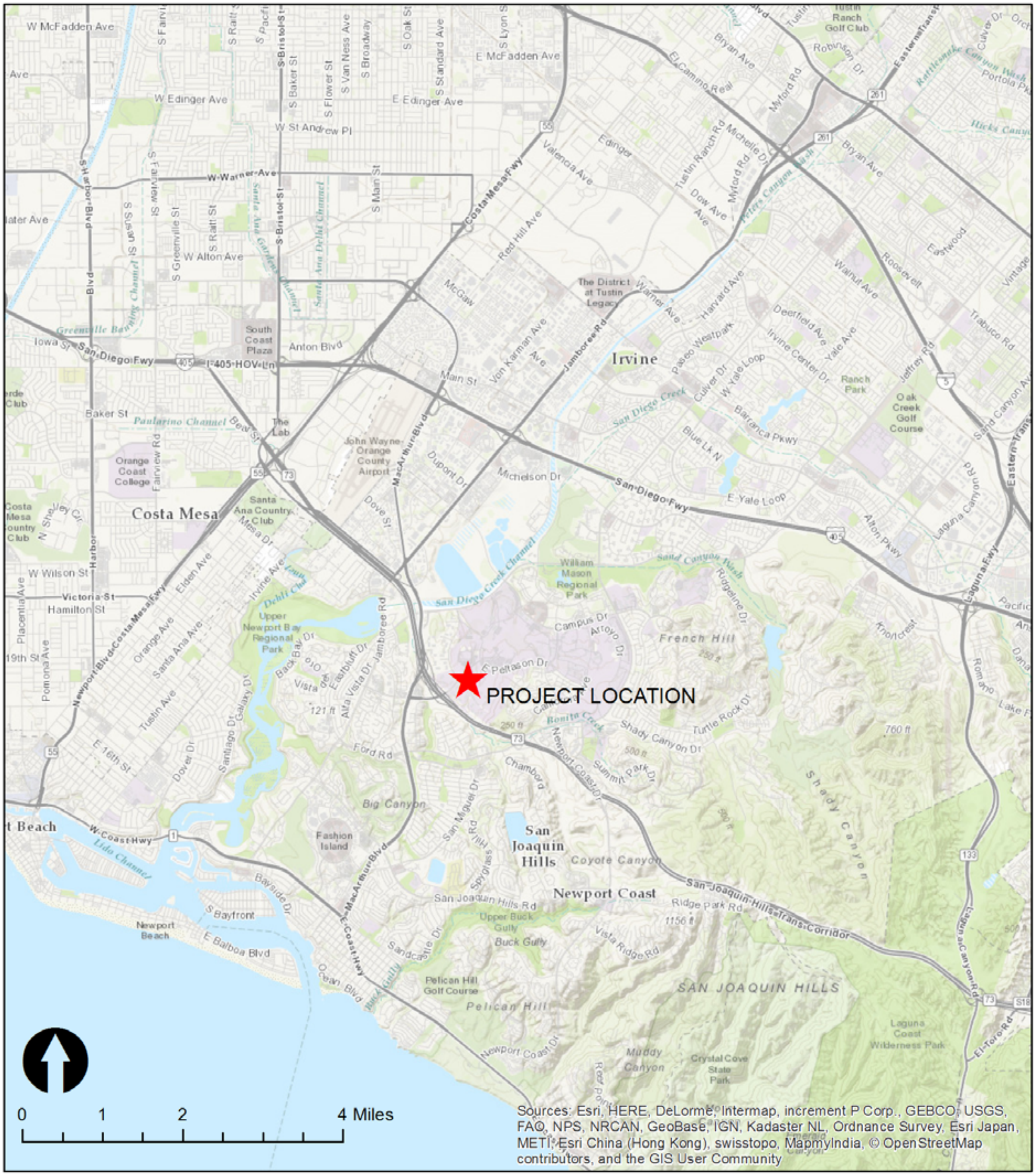
University of California, Irvine
Office of Environmental Planning and Sustainability
4199 Campus Drive, Suite 380, Irvine, CA 92697-2325

1.6 Documents Incorporated by Reference

The University of California, Irvine Long Range Development Plan (LRDP, UCI, 2007) is a comprehensive land use plan, based on projections through horizon year 2026, which guides campus growth. It provides policies and guidelines to support key academic and student life goals, identifies development objectives, delineates campus land uses, and estimates new building space needed to support project program expansion.

The Long Range Development Plan Environmental Impact Report (LRDP EIR, PBS&J, 2007) analyzes potential environmental impacts associated with the implementation of the 2007 LRDP pursuant to California Environmental Quality Act (CEQA) Guidelines Sections 15152 and 15168. This document is used to tier subsequent environmental analyses, including this Initial Study/Mitigated Negative Declaration (IS/MND), for campus development.

Exhibit 1-1
Regional Location



2.0 PROJECT DESCRIPTION

2.1 Environmental Setting and Surrounding Land Uses

The project site is located in the area of UCI designated as the West Campus, which lies adjacent to the Academic Core. The Gavin Herbert Eye Institute and a surface parking lot lies to the north across Bison Avenue; Environmental Health and Safety, an electrical substation, and open space lie to the east across Health Sciences Road; and the University Research Park lies to the west and south across California Avenue. The project site is currently undeveloped (see Exhibits 2-1 and 2-2).

2.2 Description of Project

Campus building construction has resulted in the loss of approximately 1,200 parking stalls between 2007 and 2015. Through the implementation of a comprehensive program of transportation demand management (TDM) measures and parking management policy, UCI has been able to absorb the 2007 to 2015 loss of parking stalls without the need to build additional parking facilities. Upcoming UCI building projects are projected to result in the loss of an additional 900 to 1,700 parking stalls between 2017 and 2020. Construction of the proposed project would address the parking supply and demand imbalance and mitigate the impacts of future loss of parking spaces due to construction activity.

The proposed project would construct an approximately 330,000-gross-square-foot surface parking lot that would accommodate up to 1,100 spaces on the approximately 7.6-acre site. The project scope includes vegetation clearing; grading; asphalt paving including two driveway connections to Health Sciences Drive; construction of pedestrian walkways; and installation of lighting to allow 24-hour use, drainage improvements, electric vehicle (EV) charging stations, landscaping, and irrigation. The proposed project would be constructed to allow for the future installation of an information booth and security access gate if deemed necessary at a later time.

Construction of the project would result in the removal of surface drainage features that may contain areas of wetland and riparian habitat, which would require regulatory consultation and permitting with the Army Corps of Engineers, California Department Fish and Wildlife, and Regional Water Quality Control Board – Santa Ana Region prior to construction. Potential impacts are addressed further in Section 4.3, Biological Resources.

The University of California Sustainable Practices Policy establishes goals in nine areas of sustainability: green building design, clean energy, climate protection, transportation, building operations, recycling and waste management, purchasing, foodsystems, and water systems. The proposed project would implement applicable measures addressed in the policy including enhanced waste management and water conservation during construction, energy compliance for new on-site lighting, preferred parking for electric vehicles, and use of drip irrigation and recycled water for landscaped areas.

Exhibit 2-1
Project Location and Adjacent Land Uses

Exhibit 2-2
Existing Project Views

View 1: Eastern project boundary looking south along Health Sciences Road toward Environmental Health and Safety.

View 2: Eastern project boundary looking northwest toward the project site.

View 3: North corner of project site looking north toward intersection of Bison Avenue and Health Sciences Road.

View 4: North corner of project site looking southwest toward project site.

View 5: Western boundary of project site looking northeast along Bison Avenue toward the Gavin Herbert Eye Institute.

View 6: West corner of project site looking southeast along California Avenue toward the University Research Park.

View 7: West corner of project site looking east toward project site.

View 8: Southwest boundary of project site looking northeast toward project site.

View 9: South corner of project site looking northwest toward project site.

Exhibit 2-3
Conceptual Site Plan

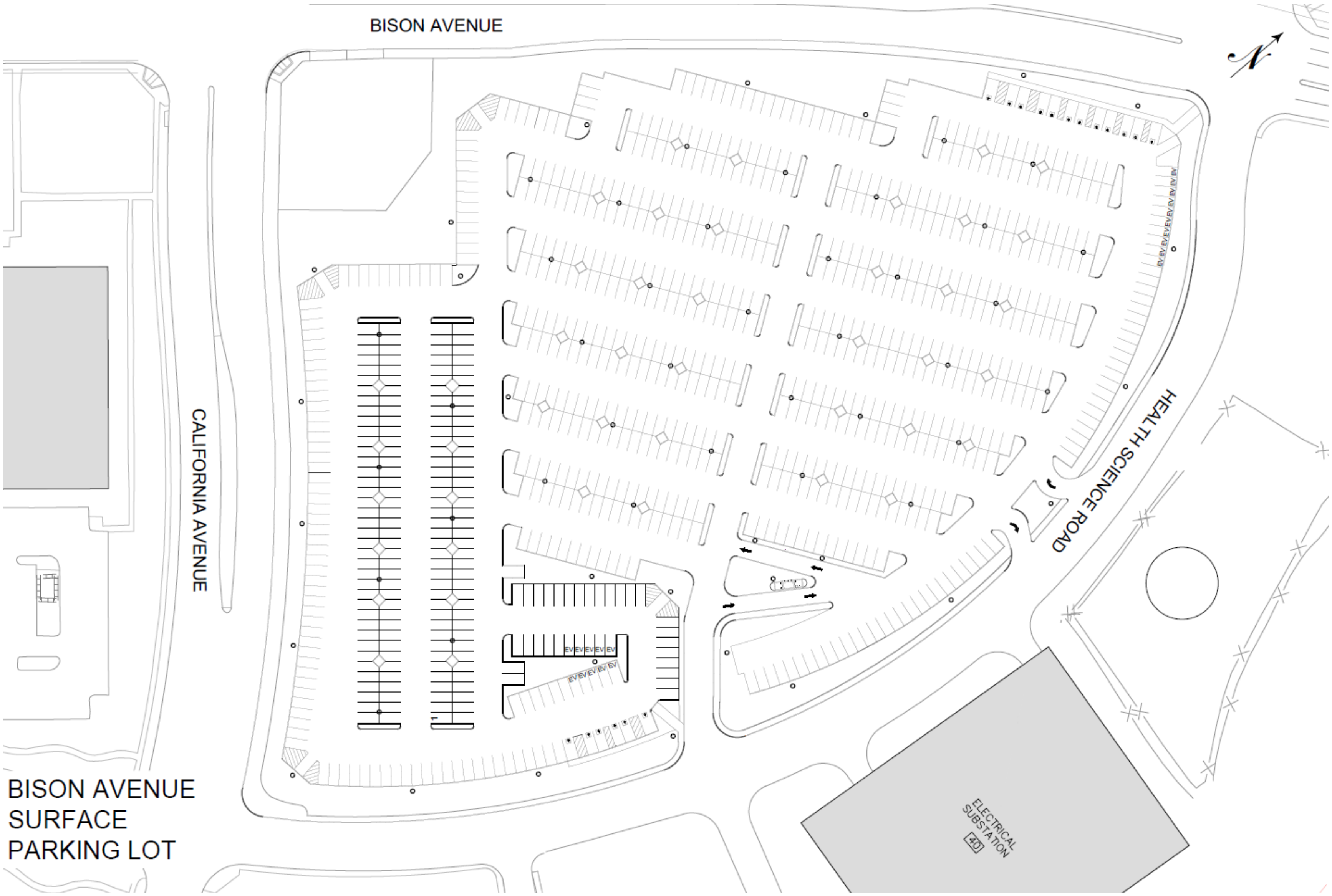


Exhibit 2-4
Conceptual Perspective

2.2.1 Project Phasing and Site Development

Project construction is anticipated to begin November 2017 and would occur over five months with anticipated completion in April 2018. Clearing would occur during the first four weeks to remove existing vegetation; installation of utilities and grading would take place in the two months following demolition. The estimated earthwork for the project is a balance of approximately 45,000 cubic yards across the site.

All areas of sensitive habitat would be fenced off during construction until appropriate permits are obtained. Appropriate acoustical and visual buffers, as determined during the final design stage, would be utilized during construction to minimize potential project related aesthetic and/or noise impacts to existing sensitive receptors.

2.2.2 Access

During construction, staging would occur on the project site. Haul routes and site access from Interstate 405 (I-405) would run from Culver Drive and/or University Drive to California Avenue to Health Sciences Road. Access from State Route 73 (SR-73) would run from MacArthur Avenue and/or Bison Avenue to Health Science Road.

The project site would be accessed from two separate driveways and a sidewalk would be installed along Health Sciences Road. Existing sidewalks and bicycle paths located along Bison Avenue, Health Sciences Road, and California Avenue would not be impacted.

2.2.3 Utilities

A finalized stormwater drainage plan would be completed during the final design phase; however, existing hydrology patterns on the site would be maintained to the extent practical in compliance with the Regional Water Quality Control Board – Santa Ana Region (RWQCB) standards and the Storm Water Pollution Prevention Plan (SWPPP). It is anticipated a 24-inch storm drain would be installed at the project site low point, the corner of Bison Avenue and Health Sciences Road. Further hydrological calculations by the civil engineer during the design phase would determine any additional upgrades, such as retention basins, needed for the collection system.

A finalized utility plan for electrical and recycled water would be completed prior to construction, but it is anticipated a six-inch recycled water line would be installed within the landscaping that runs parallel to Bison Avenue. If any existing connections conflict with the project design, alternative and/or temporary utilities would be provided to all adjacent structures during relocation.

2.3 Consistency with the LRDP

The applicable land use plan is the 2007 LRDP and the University is the only agency with land use jurisdiction over projects located on the campus. The project site is designated as Income-Producing Inclusion Area in the LRDP, which allows for parking facilities and support uses. All proposed uses are compliant with the land use designation; therefore, the proposed project is consistent with the 2007 LRDP.

The 2007 LRDP EIR identifies a program of 16,500 parking spaces to serve campus commuters, visitors and student residents in the Academic Core. UCI's 2017 parking supply to serve these needs is approximately 12,700 stalls distributed in parking structures and surface lots throughout the campus. Implementation of the proposed project, combined with the anticipated loss of parking spaces from upcoming construction projects, would result in a net supply of 12,100 to 12,900 stalls.

2.4 Discretionary Approval Authority and Other Public Agencies Whose Approval Is Required

Lead Agency

University of California

As a public agency principally responsible for approving or carrying out the proposed project, the University of California is the Lead Agency under CEQA and is responsible for reviewing and certifying the adequacy of the IS/MND and approving the proposed project. Pursuant to authority delegated from the Board of Regents of the University of California (The Regents), the UCI Chancellor would consider approval of the proposed project.

Responsible Agencies

Army Corps of Engineers

California Department of Fish and Wildlife

Regional Water Quality Control Board

3.0 DETERMINATION

On the basis of 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.
X	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

Date

Printed Name

For

4.0 EVALUATION OF ENVIRONMENTAL IMPACTS

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

- **"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.
- **"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.
- **"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.
- **"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 EIR. The project impact is less than significant without the incorporation of LRDP or project-level mitigation.
- **"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).

4.1 Aesthetics

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

Discussion

Aesthetics issues are discussed in Section 4.1 of the 2007 LRDP EIR.

a) Scenic Vista: No Impact

There are no identified scenic vistas surrounding the project site or anywhere else on campus (LRDP EIR, page 4.1-6). Therefore, the proposed project would not affect a scenic vista and no impact would occur. No mitigation is required.

b) Scenic Resources within a State Scenic Highway: No Impact

The California Scenic Highway Mapping System indicates that there are no Officially Designated

State Scenic Highways located within proximity to the project site.[1] The closest Eligible State Scenic Highway – Not Officially Designated, Pacific Coast Highway, is located more than two miles southwest. Therefore, the proposed project would not affect scenic resources within a state highway and no impact would occur. No mitigation is required.

c) Visual Character: Less than Significant Impact

The project site is located within the urbanized West Campus and surrounded by areas that have been previously developed with compatible uses consisting of commercial, campus operational, medical, utility facilities, and associated surface parking lots. Therefore, the proposed project would retain the visual character of the campus and impacts would be less than significant. No mitigation is required.

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

The proposed project would include outdoor lighting to provide safe levels of illumination for pedestrians, bicyclists, and motorists and allow 24-hour access to the parking lot. Although areas adjacent to the project site have been previously developed, ambient lighting levels would increase with the installation of 24-hour lighting. However, the project site is located within a developed area of the West Campus and the increase in ambient lighting levels would be minimal. Furthermore, a lighting plan would be approved during pre-construction in accordance with mitigation measure Aes-2B. Therefore, with implementation of LRDP EIR mitigation measure Aes-2B, potential impacts due to the creation of light and glare would be reduced to a less than significant level.

Mitigation Measures

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

- Full-cutoff lighting fixtures to direct lighting to the specific location intended for illumination (e.g., roads, walkways, or recreation fields) and to minimize stray light spillover into adjacent residential areas, sensitive biological habitat, and other light-sensitive receptors;
- Appropriate intensity of lighting to provide campus safety and security while minimizing light pollution and energy consumption; and
- Shielding direct lighting within parking areas, parking structures, or roadways away from adjacent residential areas, sensitive biological habitat, and other light-sensitive

[1] http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm. Accessed May 3, 2017.

receptors through site configuration, grading, lighting design, or barriers such as earthen berms, walls, or landscaping.

4.2 Air Quality

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	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?					X
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			X		
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)?			X		
d) Expose sensitive receptors to substantial pollutant concentrations?				X	
e) Create objectionable odors affecting a substantial number of people?				X	

Discussion

Air quality issues are discussed in Section 4.2 of the 2007 LRDP EIR. A project-specific Air

Quality Assessment was prepared by Michael Baker International, Inc. and is included as Appendix A.

a) Air Quality Management Plan Consistency: No Impact

On March 3, 2017, the South Coast Air Quality Management District (SCAQMD) Governing Board approved the 2016 Air Quality Management Plan (AQMP), which outlines its strategies for meeting the National Ambient Air Quality Standards (NAAQS) for $PM_{2.5}$ and ozone. According to the SCAQMD CEQA Air Quality Handbook, in order to determine consistency with the AQMP, two main criteria must be addressed.

Criterion 1:

With respect to the first criterion, SCAQMD methodologies require that an air quality analysis for a project include forecasts of project emissions in relation to contributing to air quality violations and delay of attainment.

- Would the project result in an increase in the frequency or severity of existing air quality violations?

Since the consistency criteria identified under the first criterion pertain to pollutant concentrations, rather than to total regional emissions, an analysis of a project's pollutant emissions relative to localized pollutant concentrations is used as the basis for evaluating project consistency. As discussed in 4.2(d) below, localized concentrations of CO, NO_X, PM_{10}, and $PM_{2.5}$ would be less than significant during project operations. Therefore, the proposed project would not result in an increase in the frequency or severity of existing air quality violations. Because reactive organic gases (ROGs) are not a criteria pollutant, there is no ambient standard or localized threshold for ROGs. Due to the role ROG plays in ozone formation, it is classified as a precursor pollutant and only a regional emissions threshold has been established.

- Would the project cause or contribute to new air quality violations?

As discussed in 4.2(b) below, operations of the proposed project would result in emissions that would be below the SCAQMD operational thresholds. Therefore, the proposed project would not have the potential to cause or affect a violation of the ambient air quality standards.

- Would the project delay timely attainment of air quality standards or the interim emissions reductions specified in the AQMP?

The proposed project would result in less than significant impacts with regard to localized concentrations during project operations. Therefore, the proposed project would not delay the timely attainment of air quality standards or 2016 AQMP emissions reductions.

Criterion 2:

With respect to the second criterion for determining consistency with SCAQMD and Southern California Association of Governments (SCAG) air quality policies, it is important to recognize that air quality planning within the Basin focuses on attainment of ambient air quality standards at the earliest feasible date. Projections for achieving air quality goals are based on assumptions regarding population, housing, and growth trends. Thus, the SCAQMD's second criterion for determining project consistency focuses on whether or not the proposed project exceeds the assumptions utilized in preparing the forecasts presented in the 2016 AQMP. Determining whether or not a project exceeds the assumptions reflected in the 2016 AQMP involves the evaluation of the three criteria outlined below. The following discussion provides an analysis of each of these criteria.

- Would the project be consistent with the population, housing, and employment growth projections utilized in the preparation of the AQMP?

In the case of the 2016 AQMP, several sources of data form the basis for the projections of air pollutant emissions including: the City of Irvine General Plan (General Plan), UCI's 2007 Long Range Development Plan (LRDP), SCAG's Growth Management Chapter of the Regional Comprehensive Plan (RCP), and SCAG's 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The RTP/SCS also provides socioeconomic forecast projections of regional population growth. The General Plan Land Use Map designates the project site as "Educational Facilities", and the LRDP designates the site as "Income-Producing Inclusion Area". According to the LRDP, the Income-Producing Inclusion Area designation permits parking facilities and support uses. Additionally, the project would be consistent with the City's General Plan and UCI's LRDP and assumed emissions for the project site, since no change in the site's land use designation is proposed. Thus, the project is generally consistent with the types, intensity, and patterns of land use envisioned for the site vicinity in the RCP. The population, housing, and employment forecasts, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the cities; these are used by SCAG in all phases of implementation and review. Additionally, as SCAQMD incorporated these same projections into the 2016 AQMP, it can be concluded that the project would be consistent with the projections. As a result, the project would not exceed growth assumptions within the City's General Plan. Therefore, the project would be consistent with the 2016 AQMP and a less than significant impact would occur.

- Would the project implement all feasible air quality mitigation measures?

Compliance with all feasible emission reduction measures identified by the SCAQMD would be required as identified in in 4.2(b) and 4.2(c) below. Therefore, the proposed project would meet this AQMP consistency criterion.

- Would the project be consistent with the land use planning strategies set forth in the AQMP?

The project is consistent with the LRDP land use designations for the site. Compliance with emission reduction measures identified by the SCAQMD would be required as identified in 4.2(b) and 4.2(c) below. Therefore, the proposed project meets this AQMP consistency criterion.

In conclusion, the determination of 2016 AQMP consistency is primarily concerned with the long-term influence of a project on air quality in the Basin. The proposed project would not result in a long-term impact on the region's ability to meet State and federal air quality standards. Also, the proposed project would be consistent with the goals and policies of the AQMP for control of fugitive dust. As discussed above, the proposed project's long-term influence would also be consistent with the SCAQMD and SCAG's goals and policies and is, therefore, considered consistent with the 2016 AQMP. No mitigation is required.

b) Air Quality Standards: Less Than Significant Impact with Project-level Mitigation Incorporated

Short-Term Construction

Short-term air quality impacts are predicted to occur during grading and construction operations associated with implementation of the proposed project. Temporary air emissions would result from the following activities:

- Particulate (fugitive dust) emissions from grading; and
- Exhaust emissions from the construction equipment and the motor vehicles of the construction crew.

Construction would involve activities associated with demolition of the vegetated area, grading, and paving. Site grading would require approximately 26,500 cubic yards of cut and 26,500 cubic yards of fill. Project construction equipment would include excavators, loaders, dump trucks, and dozers during demolition; graders, rollers, loaders, and dozers during grading; and pavers, rollers, loaders, dump trucks, and a crawler crane during paving. Emissions for each construction phase have been quantified based upon the phase durations and equipment types. The analysis of daily construction emissions has been prepared utilizing the California Emissions Estimator Model (CalEEMod) version 2016.3.1. Table 4.2-1, Short-Term (Construction) Emissions, presents the anticipated daily short-term construction emissions.

Fugitive Dust Emissions

Construction activities are a source of fugitive dust (PM_{10} and $PM_{2.5}$) emissions that may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the project area. Fugitive dust emissions are associated with land clearing, ground excavation, cut-and-fill, and truck travel on unpaved roadways (including demolition as well as construction activities). Fugitive dust emissions vary substantially from day to day, depending on the level of activity, specific operations, and weather conditions. Fugitive dust from grading and construction is expected to be short-term and would cease upon project completion. Additionally, most of this material is inert silicates, rather than the complex organic particulates released from combustion sources, which are more harmful to health.

Table 4.2-1
Short-Term (Construction) Emissions

Emissions Source	Pollutant (pounds/day) [1, 2]					
	ROG[3]	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2017						
Unmitigated Emissions	8.23	84.65	42.31	0.08	14.69	8.57
Mitigated Emissions	8.28	84.65	42.31	0.08	7.09	4.50
SCAQMD Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Is Threshold Exceeded After Mitigation?	***No***	***No***	***No***	***No***	***No***	***No***
2018						
Unmitigated Emissions	3.68	45.33	18.54	0.04	14.50	8.40
Mitigated Emissions	3.68	45.33	18.54	0.04	6.90	4.32
SCAQMD Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Is Threshold Exceeded After Mitigation?	***No***	***No***	***No***	***No***	***No***	***No***

Notes:
1. Emissions were calculated using CalEEMod, as recommended by the SCAQMD.
2. The reduction/credits for construction emission mitigations are based on mitigation included in CalEEMod and as typically required by the SCAQMD. The mitigation includes the following: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces three times daily; cover stock piles with tarps; water all haul roads twice daily; and limit speeds on unpaved roads to 15 miles per hour.
3. Both ROGs and VOCs are subsets of organic gases that are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. Although they represent slightly different subsets of organic gases, they are used interchangeably for the purposes of this analysis.

Refer to Appendix A, Air Quality Emissions Data, for assumptions used in this analysis.

Dust (larger than 10 microns) generated by such activities usually becomes more of a local nuisance than a serious health problem. Of particular health concern is the amount of PM_{10} (particulate matter smaller than 10 microns) generated as a part of fugitive dust emissions. PM_{10} poses a serious health hazard alone or in combination with other pollutants. Fine Particulate Matter ($PM_{2.5}$) is mostly produced by mechanical processes. These include automobile tire wear, industrial processes such as cutting and grinding, and re-suspension of particles from the ground or road surfaces by wind and human activities such as construction or agriculture. $PM_{2.5}$ is mostly derived from combustion sources, such as automobiles, trucks, and other vehicle exhaust, as well as from stationary sources. These particles are either directly emitted or are formed in the atmosphere from the combustion of gases such as NO_X and SO_X combining with ammonia. $PM_{2.5}$ components from material in the earth's crust, such as dust, are also present, with the amount varying in different locations.

Mitigation measure AQ-1 would require the project contractor to implement construction emissions Best Management Practices (BMPs) during construction, including, but not limited to, dust control techniques (i.e., daily watering), a traffic management plan, and adherence to

SCAQMD Rules 402 and 403 (which require watering of inactive and perimeter areas, track out requirements, etc.), to reduce PM_{10} and $PM_{2.5}$ concentrations. These are standard dust control measures that the SCAQMD requires for all projects. As indicated in Table 4.2-1, total PM_{10} and $PM_{2.5}$ emissions would be below the SCAQMD threshold with the implementation of mitigation measure AQ-1. Therefore, particulate matter impacts during construction would be less than significant.

ROG Emissions[1]

In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O_3 precursors. In accordance with the methodology prescribed by the SCAQMD, the ROG emissions associated with paving have been quantified with CalEEMod. As shown in Table 4.2-1, project construction would not result in an exceedance of ROG emissions during any years of construction. Therefore, impacts would be less than significant.

Construction Equipment and Worker Vehicle Exhaust

Exhaust emissions from construction activities include emissions associated with the transport of machinery and supplies to and from the project site, emissions produced on-site as the equipment is used, and emissions from trucks transporting materials to and from the site. Standard SCAQMD regulations, such as maintaining all construction equipment in proper tune, shutting down equipment when not in use for extended periods of time, and implementing SCAQMD Rule 403 would be adhered to. As shown in Table 4.2-1, construction equipment exhaust would not exceed SCAQMD thresholds. Therefore, impacts are less than significant.

Naturally Occurring Asbestos

Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by State, Federal, and international agencies and was identified as a toxic air contaminant by the California Air Resources Board in 1986.

Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All of these activities may have the effect of

[1] ROGs and VOCs are subsets of organic gases that are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. Although they represent slightly different subsets of organic gases, they are used interchangeably for the purposes of this analysis.

releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed. According to the Department of Conservation Division of Mines and Geology, A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report (August 2000), serpentinite and ultramafic rocks are not known to occur within the project area. Thus, there would be no impact in this regard.

Construction Odors

Potential odors could arise from the diesel construction equipment used on-site and asphalt off-gassing. Odors generated from the referenced sources are common in the man-made environment and are not known to be substantially offensive to adjacent receptors. Additionally, odors generated during construction activities would be temporary and would decrease rapidly. Therefore, construction odors are not considered to be a significant impact.

Total Daily Construction Emissions

In accordance with the SCAQMD Guidelines, CalEEMod was utilized to model construction emissions for ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. Construction would occur over a five month period with the greatest emissions being generated during the initial stages of construction.

CalEEMod allows the user to input mitigation measures such as watering the construction area to limit fugitive dust. Mitigation measures that were input into CalEEMod allow for certain reduction credits and result in a decrease of pollutant emissions. Reduction credits are based upon studies developed by CARB, SCAQMD, and other air quality management districts throughout California, and were programmed within CalEEMod. As indicated in Table 4.2-1, CalEEMod calculates the reduction associated with recommended mitigation measures, AQ-1, and construction emissions would be less than significant. Therefore, construction related air emissions would be less than significant.

Long-Term Operational Emissions

Mobile Source Emissions

Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, ROG, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ are all pollutants of regional concern (NO_X and ROG react with sunlight to form O_3 [photochemical smog], and wind currents readily transport SO_X, PM_{10}, and $PM_{2.5}$). However, CO tends to be a localized pollutant, dispersing rapidly at the source.

Project-generated vehicle emissions have been estimated using CalEEMod. Trip generation rates associated with the project were based on traffic data within the *Bison Parking Lot Traffic Study* (Traffic Study) for the proposed project, prepared by Stantec Consulting Services (dated April 2017). The proposed project would result in approximately 5,503 daily trips to this part of campus. Table 4.2-2, *Long-Term Air Emissions*, presents the anticipated mobile source emissions. As shown in Table 4.2-2, mitigated emissions generated by vehicle traffic associated with the proposed project would not exceed established SCAQMD regional thresholds.

Table 4.2-2
Long-Term Air Emissions

Source	Estimated Emissions (pounds/day)[1]					
	ROG	NOX	CO	SOX	PM10	PM2.5
Area Sources	0.15	0.00	0.10	0.00	0.00	0.00
Energy Sources	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Sources	7.08	14.06	32.90	0.02	0.04	0.04
Total Emissions	7.23	14.06	33.00	0.02	0.04	0.04
SCAQMD Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Is Threshold Exceeded? (Significant Impact)	***No***	***No***	***No***	***No***	***No***	***No***

Notes:
1. Based on CalEEMod modeling results, mitigated seasonal emissions for area and mobile emissions have been modeled.

Source: Refer to Appendix A, Air Quality Emissions Data, for assumptions used in this analysis.

Area Source Emissions

Area source emissions would be generated due to an increased demand for consumer products, architectural coating, and landscaping. The proposed project is a parking lot and would not involve the use of consumer products or hearths. As shown in Table 4.2-2, mitigated area source emissions from the proposed project would not exceed SCAQMD thresholds for ROG, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$.

Energy Source Emissions

Energy source emissions would be generated as a result of electricity and natural gas (non-hearth) usage associated with the proposed project. The proposed parking lot would not require the use of natural gas. The primary use of electricity would be from the parking lot lighting. CalEEMod calculates the energy use from lighting in open parking lots. As shown in 4.2-2, energy source emissions from the proposed project would be nominal and would not exceed SCAQMD thresholds for ROG, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$.

Conclusion

As indicated in Table 4.2-2, mitigated operational emissions from the proposed project would not exceed SCAQMD thresholds. If stationary sources, such as backup generators, are installed on-site, they would be required to obtain the applicable permits from SCAQMD for operation of such equipment. The SCAQMD is responsible for issuing permits for the operation of stationary sources in order to reduce air pollution, and to attain and maintain the national and California ambient air quality standards in the Basin. Backup generators would be used only in emergency situations, and would not contribute a substantial amount of emissions capable of exceeding SCAQMD thresholds. Therefore, with incorporation of project-specific mitigation measure AQ-1, operational air quality impacts would be reduced to a less than significant level.

c) Cumulatively Considerable Net Increase of Any Criteria Pollutants: Less Than Significant Impact with Project-level Mitigation Incorporated

With respect to the proposed project's construction-related air quality emissions and cumulative Basin-wide conditions, the SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the 2016 AQMP pursuant to Federal Clean Air Act mandates. As such, the proposed project would comply with SCAQMD Rule 403 requirements, and implement all feasible mitigation measures (mitigation measure AQ-1). Rule 403 requires that fugitive dust be controlled with the best available control measures in order to reduce dust so that it does not remain visible in the atmosphere beyond the property line of the proposed project. In addition, the proposed project would comply with adopted 2016 AQMP emissions control measures. Per SCAQMD rules and mandates, as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements (i.e., Rule 403 compliance, the implementation of all feasible mitigation measures, and compliance with adopted AQMP emissions control measures) would also be imposed on construction projects throughout the Basin, which would include related projects.

As discussed previously, the proposed project would not result in long-term air quality impacts, as emissions would not exceed the SCAQMD adopted operational thresholds. Additionally, adherence to SCAQMD rules and regulations would alleviate potential impacts related to cumulative conditions on a project-by-project basis. Emission reduction technology, strategies, and plans are constantly being developed. As a result, the proposed project would not contribute a cumulatively considerable net increase of any nonattainment criteria pollutant. Therefore, compliance with project-specific AQ-1 would reduce impacts to a less than significant level.

d) Sensitive Receptors: Less Than Significant Impact

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

The closest on-campus sensitive receptors near the project site include residences to the northeast and the Gavin Herbert Eye Institute to the northwest of the project site. In order to identify impacts to sensitive receptors, the SCAQMD recommends addressing localized significance thresholds (LSTs) for construction and operations impacts (area sources only). The CO hotspot analysis following the LST analysis addresses localized mobile source impacts.

Localized Significance Thresholds (LST)

LSTs were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (dated June 2003 [revised 2008]) for guidance. The LST methodology assists lead agencies in analyzing localized air quality impacts. The SCAQMD provides the LST screening lookup tables for one, two, and five acre projects emitting CO, NO_X, $PM_{2.5}$, or PM_{10}. The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways. The SCAQMD recommends that any project over five acres should perform air quality dispersion modeling to assess impacts to nearby sensitive receptors. The project is located within Source Receptor Area (SRA) 20, Central Orange County Coastal.

Construction

The SCAQMD guidance on applying CalEEMod to LSTs specifies the amount of acres a particular piece of equipment would likely disturb per day. According to the SCAQMD guidance on applying CalEEMod to LSTs, the project would disturb at most three acres of land per day based on the low amount of construction equipment for the project site size (7.56 acres). However, the AQMD provides thresholds for one, two, and five acre sites. Therefore, the LST thresholds for two acres was conservatively utilized for the construction LST analysis. The closest sensitive receptors to the project site are medical/educational uses (Gavin Herbert Eye Institute) located approximately 126 feet (38 meters) to the northwest of the project site. This sensitive land use may be potentially affected by air pollutant emissions generated during on-site construction activities. LST thresholds are provided for distances to sensitive receptors of 25, 50, 100, 200, and 500 meters. As the nearest sensitive use is located approximately 126 feet (38 meters) to the northwest of the project site, the LST values for 38 meters were interpolated between the 25 and 50 meter thresholds. Table 4.2-3, Localized Significance of Construction Emissions, shows the localized unmitigated and mitigated construction-related emissions. It is noted that the localized emissions presented in Table 4.2-3 are less than those in Table 4.2-1 because localized emissions include only on-site emissions (i.e., from construction equipment and fugitive dust), and do not include off-site emissions (i.e., from hauling activities). As seen in Table 4.2-3, mitigated on-site emissions would not exceed the LSTs for SRA 20.

Table 4.2-3
Localized Significance of Construction Emissions

Source	**Pollutant (pounds/day)[1]**			
	NOX	**CO**	**PM10**	**PM2.5**
2017				
Total Unmitigated On-Site Emissions[2,3]	84.54	41.16	14.43	8.49
Total Mitigated On-Site Emissions[2,3]	84.54	41.16	6.80	4.41
Localized Significance Threshold[1]	*129*	*1,020*	*6.83*	*4.42*
Thresholds Exceeded?	***No***	***No***	***No***	***No***
2018				
Total Unmitigated On-Site Emissions[4]	37.97	16.28	14.25	8.32

Total Mitigated On-Site Emissions[4]	37.97	16.28	6.65	4.25
Localized Significance Threshold[1]	*129*	*1,020*	*14*	*6*
Thresholds Exceeded?	***No***	***No***	***No***	***No***

Notes:
1. The Localized Significance Threshold was determined using Appendix C of the SCAQMD Final Localized Significant Threshold Methodology guidance document for pollutants NOX, CO, PM10, and PM2.5. The Localized Significance Threshold was based on the anticipated daily acreage disturbance for construction, the distance to sensitive receptors, and the source receptor area (SRA 20).
2. The Demolition Phase represents the worst case scenario for NOX and CO.
3. The Grading Phase represents the worst case scenario for PM10, and PM2.5.
4. The Building Construction Phase represents the worst case scenario for NOx, CO, PM10, and PM2.5.

Operations

For project operations, the five acre threshold was conservatively utilized, as the project site is approximately 7.56 acres. As the nearest sensitive uses are located approximately 126 feet (38 meters) to the northwest of the project site, the LST values for 38 meters were interpolated between the 25 meter and 50 meter values. As seen in Table 4.2-4, Localized Significance of Operational Emissions, project-related mitigated operational area source emissions would be negligible and would be below the LSTs. As such, operational LST impacts would be less than significant.

Table 4.2-4
Localized Significance of Operational Emissions

Source	Pollutant (pounds/day)			
	NOX	CO	PM10	PM2.5
Area Source Emissions	0.15	0.10	0.0	0.0
Localized Significance Threshold[1]	193	690	8	3
Thresholds Exceeded?	***No***	***No***	***No***	***No***

Note:
1. The Localized Significance Threshold was determined using Appendix C of the SCAQMD Final Localized Significant Threshold Methodology guidance document for pollutants NOX, CO, PM10, and PM2.5. The Localized Significance Threshold was based on the total acreage, the distance to sensitive receptors, and the source receptor area (SRA 20).

Carbon Monoxide Hotspots

Intersection Hotspots

CO emissions are a function of vehicle idling time, meteorological conditions, and traffic flow. Under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthful levels (i.e., adversely affecting residents, school children, hospital patients, the elderly, etc.).

The SCAQMD requires a quantified assessment of CO hotspots when a project increases the volume-to-capacity ratio (also called the intersection capacity utilization) by 0.02 (two percent) for any intersection with an existing level of service LOS D or worse. Because traffic congestion is highest at intersections where vehicles queue and are subject to reduced speeds, these hot spots are typically produced at intersections.

The project is located in the South Coast Air Basin (Basin), which is designated as an attainment/maintenance area for the Federal CO standards and an attainment area for State standards. There has been a decline in CO emissions even though vehicle miles traveled on U.S. urban and rural roads have increased. On-road mobile source CO emissions have declined 24 percent between 1989 and 1998, despite a 23 percent rise in motor vehicle miles traveled over the same 10 years. California trends have been consistent with national trends; CO emissions declined 20 percent in California from 1985 through 1997 while vehicle miles traveled increased 18 percent in the 1990s. CO emissions have continued to decline since this time. The Basin was re-designated as attainment in 2007, and is no longer addressed in the SCAQMD's AQMP. Three major control programs have contributed to the reduced per-vehicle CO emissions: exhaust standards, cleaner burning fuels, and motor vehicle inspection/maintenance programs.

A detailed CO analysis was conducted in the *Federal Attainment Plan for Carbon Monoxide* (CO Plan) for the SCAQMD's 2003 Air Quality Management Plan. The 2003 *Air Quality Management Plan* is the most recent AQMP that addresses CO concentrations. The locations selected for microscale modeling in the CO Plan are worst-case intersections in the Basin, and would likely experience the highest CO concentrations. Thus, CO analysis within the CO Plan is utilized in a comparison to the proposed project, since it represents a worst-case scenario with heavy traffic volumes within the Basin.

Of these locations, the Wilshire Boulevard/Veteran Avenue intersection in Los Angeles experienced the highest CO concentration (4.6 parts per million [ppm]), which is well below the 35-ppm 1-hr CO Federal standard. The Wilshire Boulevard/Veteran Avenue intersection is one of the most congested intersections in Southern California with an average daily traffic (ADT) volume of approximately 100,000 vehicles per day. As the CO hotspots were not experienced at the Wilshire Boulevard/Veteran Avenue intersection, it can be reasonably inferred that CO hotspots would not be experienced at any intersections within the vicinity of the project site due to the low volume of traffic (5,503 daily trips) that would occur as a result of project implementation. Therefore, impacts would be less than significant.

e) Objectionable Odors: Less than Significant Impact

According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project does not include any uses identified by the SCAQMD as being associated with odors.

Construction activities associated with the project may generate detectable odors from heavy-duty equipment exhaust. Construction-related odors would be short-term in nature, dissipate rapidly, and cease upon project completion. Any impacts to existing adjacent land uses would be short-term and are less than significant.

Mitigation Measures

AQ-1: Prior to initiating 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 BMPs:

- 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.
- 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.
- Disturbed areas designated for landscaping shall be prepared as soon as possible after completion of construction activities.
- 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.
- 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.
- 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.
- 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.
- Speed limit signs at 15 mph or less shall be installed on all unpaved roads within construction sites.
- 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.
- 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.

- 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.

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

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

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

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

- 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.

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

- 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.

4.3 Biological Resources

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	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 Wildlife or U.S. Fish and Wildlife Service?			X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?			X		
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?			X		

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?					X
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?					X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan?					X

Discussion

Biological resources issues are discussed in Section 4.3 of the 2007 LRDP EIR. A project-specific Biological Constraints Analysis and Jurisdictional Delineation was prepared by LSA.

a) Sensitive Species: Less than Significant Impact with Project-level Mitigation Incorporated

The project-specific Biological Constraints Analysis identified two special-status plant species and three animal species with at least a moderate probability of occurrence. The two special-status plant species are the many-stemmed dudleya and the southern tarplant. Both plants are included on the California Department of Fish and Wildlife (CDFW) Special Plants list and are designated as Rare Plant Rank 1B by the California Native Plant Society (CNPS); however, neither were observed during the surveys.

There are two special-status animal species, redshouldered hawk and coastal California gnatcatcher (both NCCP Identified Species), with a high probability of occurrence on the project site. A red-shouldered hawk was observed in the immediate vicinity of the project site during surveying. A moderately-sized patch of coastal sage scrub exists in the western portion of the project site; however, it is likely too small to provide habitat for gnatcatcher. During surveying, scat of one special-status animal species, coyote (NCCP Identified Species), was observed.

The University is a Participating Landowner in the NCCP/HCP. Take of NCCP Identified Species is authorized on all lands owned by Participating Landowners outside the NCCP Reserve System, including those listed and/or observed above. Therefore, impacts to the habitats and special-status species would be less than significant.

Existing on-site vegetation, where birds protected under the Migratory Bird Treaty Act (MBTA) may occur during the nesting season, would be removed during site preparation. Therefore, in the event that clearing occurs during the nesting season, compliance with project-specific mitigation measure BR-1, which would require bird surveying 30 days prior to construction, would reduce potential impacts to sensitive species to a less than significant level.

b) Riparian Habitat: Less than Significant Impact with Project-level Mitigation Incorporated

c) Wetlands: Less than Significant Impact with Project-level Mitigation Incorporated

As discussed in the project-specific Jurisdictional Delineation, two unnamed ephemeral drainage features occur on the project site and are labeled as Drainage 1 and Basin 1 (see Exhibit 4.3-1). Drainage 1 runs parallel to Health Sciences Road, and Basin 1 is located at the intersection of Bison and California Avenues. Both have associated concrete v-ditches for draining runoff, and neither convey a permanent flow of water. Both the drainage and the basin flow into underground storm drains that drain into San Diego Creek.

Drainage 1 flows from south to north, and associated vegetation is facultative upland, obligate upland, and mule fat. A portion of Drainage 1 was realigned as part of the UCI 66 kilovolt (kV) Upgrade (switchyard) project (see Exhibit 4.3-1). As part of that project, a portion of the original drainage that was located in what is now Health Sciences Road, was permanently impacted and mitigated for off-site adjacent to the 66 kV switchyard on the campus.

Basin 1 collects storm water runoff, has concrete-lined banks, and has accumulated a six-to-eight inch layer of soil. The accumulated soil has resulted in the establishment of facultative vegetation, primarily mule fat. A portion of Basin 1 was constructed as part of the University Research Park (URP) project (see Exhibit 4.3-1), and the associated riparian vegetation to the southwest and the ephemeral drainage to the southeast developed as a result of the basin and bluff at the corner of Bison Avenue and California Avenue. As part of the URP project, a portion or all of the original drainage, which was located in what is now California Avenue and the

Exhibit 4.3-1
Jurisdictional Delineation

constructed bluff, was permanently impacted. The existing Basin 1 area was excavated solely for the purpose of draining upland runoff, and was not constructed as part of the mitigation for the original impacted drainage.

Appropriate permits, in compliance with mitigation measure BR-2, would be obtained from the US Army Corps of Engineers, CDFW, and Regional Water Quality Control Board – Santa Ana Region (RWQCB) prior to impacting either Drainage 1 or Basin 1 in accordance with Sections 404 and 401 of the Clean Water Act and Section 1602 of the California Fish and Game Code. Due to the previous mitigation of both Drainage 1 and Basin 1 during the 66 kV Upgrade and URP projects, consultation would occur with the US Army Corps and CDFW during the permitting process to come to an agreement on appropriate mitigation acreage. In the event that construction begins prior to obtaining permits, Drainage 1 and Basin 1 would be fenced off in compliance with mitigation measure BR-3. Therefore, with implementation of mitigation measures BR-2 and BR-3, impacts to wetland and riparian habitat would be reduced to a less than significant level.

d) Wildlife Corridors: No Impact

The 2007 LRDP EIR determined that the campus is bordered by mixed use, residential uses, and roadways with limited wildlife movement corridors in the vicinity. The project site is also located more than 1,000 feet from drainage culverts that were placed under the State Route 73 (SR-73) Toll Road to support movement between the Bonita Canyon Wetland areas, San Joaquin Hills, and the NCCP Reserve System lands on the campus (LRDP EIR, page 4.3-47). Furthermore, as discussed in Section 2.0, Project Description, the project site is enclosed by roadways and buildings, which is not conducive to wildlife movement. Therefore, the proposed project would not interfere with wildlife corridors and no impact would occur. No mitigation is required.

e) Conflict with Applicable Policies: No Impact

As discussed above in 4.3(b) and 4.3(c), with the incorporation of project-specific mitigation measure BR-2, the proposed project would not conflict with applicable policies for biological resources. Furthermore, the University is the only agency with local land use jurisdiction over the project. No specific UC policies have been adopted for the project site protecting biological resources. Therefore, the proposed project would not conflict with local policies protecting biological resources and no impact would occur. No mitigation is required.

f) Conflict with a Natural Community Conservation Plan or Habitat Conservation Plan: No Impact

The project site itself is not located within a Habitat Conservation Plan, Natural Community Conservation Plan, or any other habitat conservation plan. As discussed in 4.3(a) above, the proposed project does not conflict with the County of Orange NCCP/HCP. Therefore, no impacts would occur. No mitigation is required.

Mitigation Measures

BR-1: If project construction is necessary during the bird breeding season (February 1 through August 31), a qualified biologist with experience in conducting bird breeding surveys shall conduct weekly bird surveys for nesting birds, within three days prior to the work in the area, and ensure no nesting birds in the project area would be impacted by the project. If an active nest is identified, a buffer shall be established between the construction activities and the nest so that nesting activities are not interrupted. The buffer shall be a minimum width of 300 feet (500 feet for raptors), be delineated by temporary fencing, and remain in effect as long as construction is occurring or until the nest is no longer active. No project construction shall occur within the fenced nest zone until the young have fledged, are no longer being fed by the parents, have left the nest, and will no longer be impacted by the project. Reductions in the nest buffer distance may be appropriate depending on the avian species involved, ambient levels of human activity, screening vegetation, or possibly other factors.

BR-2: In accordance with Sections 404 and 401 of the Clean Water Act and Section 1602 of the California Fish and Game Code, appropriate permits shall be obtained through the Army Corps of Engineers, California Department of Fish and Wildlife, and Regional Water Quality Control Board. A mitigation replacement program shall be implemented off-site on the UCI campus.

BR-3: In the event that construction starts prior to obtaining permits in compliance with Sections 404 and 401 of the Clean Water Act and Section 1602 of the California Fish and Game Code, all potentially jurisdictional areas shall be flagged and fenced off. Construction personnel, equipment, and materials shall not enter, be stored, or remain in these areas until permit approval. Standard BMPs shall be implemented to prevent incidental discharges and/or fills.

4.4 Cultural Resources

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?					X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		X			
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X			
d) Disturb any human remains, including those interred outside of formal cemeteries?				X	
e) Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074?				X	

Discussion

Cultural resources issues are discussed in Section 4.4 of the 2007 LRDP EIR.

a) Historical Resources: No Impact

The project site is a vacant lot with no physical structures. Furthermore, as shown in the LRDP EIR Table 4.4-2, none of the potential historical resources listed exist on the project site (page

4.4-15). Therefore, no impacts to historical resources would occur. No mitigation is required.

b) Archaeological Resources: Project Impact Adequately Addressed in EIR

Recorded archaeological resources located within the UCI campus are summarized in Table 4.4-1 of the 2007 LRDP EIR. Two archaeological sites have been discovered and recorded in the West Campus, none of which are located on or adjacent to the project site. Data and artifacts from both have been recovered and no further archaeological testing is required. To date there has been no evidence of any archaeological resources within the project boundaries, but there is some possibility that unknown archaeological remains could occur beneath the ground surface (LRDP EIR, page 4.4-4). Earth moving activities could possibly uncover previously undetected archaeological remains associated with prehistoric cultures, and a loss of a significant archaeological resource could result if such materials are not properly identified. Therefore, monitoring during grading by a qualified archaeologist through implementation of LRDP EIR mitigation measure Cul-1C would reduce impacts to archaeological resources to a less than significant level.

c) Paleontological Resources: Project Impact Adequately Addressed in EIR

Paleontological investigations conducted for the 1989 LRDP determined that the Topanga Formation geologic units under the campus are considered to be of high paleontological sensitivity for vertebrate and invertebrate fossils. The assessment noted that one of the most unique features on the campus is the micro-paleontological material found along Bonita Canyon Drive, consisting of microscopic fossils of single-celled animals that inhabited the sea floor. The fossils contained in these exposures are of regional and interregional significance because they provide the basis for comparisons between the depositional histories of various parts of the Los Angeles Basin (LRDP EIR, page 4.4-19). Given the geological setting and recognized high sensitivity for vertebrate and invertebrate fossils on the campus, excavation operations, such as trenching and/or tunneling that cut into geologic formations, might expose fossil remains. According to the 2007 LRDP EIR, any project involving excavation into either the Topanga Formation or the terrace deposits could have an adverse effect on paleontological resources. Therefore, implementation of LRDP EIR mitigation measures Cul-4A, Cul-4B, and Cul-4C, which requires monitoring during grading and proper recovery if fossils are found, would reduce impacts to paleontological resources to a less than significant level (LRDP EIR, page 4.4-20).

d) Human Remains: Less than Significant Impact

Human remains may be uncovered during earth moving activities associated with construction of the project. In the event that human remains are discovered during construction, UCI would comply with Section 7050.5 of the California Health and Safety Code and Public Resources Code 5097.98, which requires notification of the County Coroner to determine whether the remains are of forensic interest. If the Coroner, with the aid of a supervising archeologist, determines that the remains appear to be Native American, s/he would contact the Native American Heritage Commission (NAHC) within 24 hours, who would in turn, notify the person they identify as the most likely descendent (MLD) of the human remains. Further actions would be determined by the MLD who has 48 hours after notification of the NAHC to make recommendations regarding the disposition of the remains. Therefore, compliance with the California Health and Safety Code and Public Resources Code would reduce potential impacts to human remains to a less than significant level. No mitigation is required.

e) Tribal Cultural Resources: Less than Significant Impact

In accordance with AB 52, notification letters were mailed to the Gabrieleño Band of Mission Indians – Kizh Nation and Juaneño Band of Mission Indians – Acjachemen Nation on February 15, 2017. UCI received a letter dated March 15, 2017 from the Gabrieleño Band of Mission Indians requesting that an affiliated Native American monitor be on-site during ground disturbance activities. UCI will continue to consult with the Gabrieleño Band of Mission Indians regarding their interest in an on-site tribal monitor. Therefore, impacts to tribal resources would be less than significant. No mitigation is required.

Mitigation Measures

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

a. Perform appropriate technical analyses;

b. File an resulting reports with South Coast Information Center; and

c. Provide the recovered materials to an appropriate repository for curation, in consultation with a culturally-affiliated Native American.

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

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

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

a. The paleontologist shall ensure that all significant fossils collected are cleaned, identified, catalogued, and permanently curated with an appropriate institution with a research interest in the materials (which may include UCI);

b. The paleontologist shall ensure that specialty studies are completed, as appropriate, for any significant fossil collected; and

c. The paleontologist shall ensure that curation of fossils are completed in consultation with UCI. A letter of acceptance from the curation institution shall be submitted to UCI.

4.5 Geology and Soils

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	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.				X	
ii) Strong seismic ground shaking?				X	
iii) Seismic-related ground failure, including liquefaction?				X	
iv) Landslides				X	
b) Result in substantial soil erosion or the loss of topsoil?				X	

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				X	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?					X

Discussion

Geology and soils issues are discussed in Section 4.5 of the 2007 LRDP EIR.

a) Expose People or Structures to:

i) Fault Rupture: Less than Significant Impact

No active or potentially active earthquake faults have been identified on the UCI campus through the State Alquist-Priolo Earthquake Fault Zoning Act program, but a locally mapped fault trace, known as the “UCI Campus Fault,” traverses the campus. A Restricted Use Zone (RUZ) extending 50 feet beyond both sides of this fault has been established to prevent the construction of new development on the fault in case of rupture (LRDP EIR, pages 4.5-8 through 9). The RUZ does not extend onto the project site and is located approximately one-half mile southwest. Grading, foundation, and building structure elements would be designed to meet or exceed the California Building Code (CBC) seismic safety standards and comply with the UC Seismic Safety Policy. Therefore, due to location and compliance with the CBC, impacts due to fault rupture would be less than significant.

ii) Seismic Ground Shaking: Less than Significant Impact

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, approximately 35 miles northeast of the campus could generate an 8.0 magnitude level of energy, and movement along the San Jacinto Fault, approximately 30 miles away, could release ground motion energy estimated at 7.5 on the Richter scale (LRDP EIR, page 4.5-2).

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, and people residing in the proposed development could be exposed to these hazards. However, grading, foundation, and building structure elements would be designed to meet or exceed the CBC seismic safety standards. In addition, the University has adopted a number of programs and procedures to reduce the hazards from seismic shaking including through compliance with the UC Seismic Safety Policy. Therefore, compliance with the CBC, UC Seismic Safety Policy, and implementation of recommendations in the site-specific geotechnical study conducted during the design phase would reduce any potential hazards associated with seismic ground shaking to a less than significant level. No mitigation is required.

iii) Liquefaction: Less than Significant Impact

The 2007 LRDP EIR indicates that a majority of soils on the UCI campus are characterized as terraced deposits. It is unlikely that these soils would be subject to liquefaction due to the denseness of the material and depth to groundwater.A project-specific geotechnical investigation conducted during the design phase would confirm this requirement in accordance with the CBC. Therefore, compliance with the CBC and implementation of recommendations in the site-specific geotechnical investigation conducted during the design phase would reduce any potential hazards associated with liquefaction to a less than significant level. No mitigation is required.

iv) Landslide: Less than Significant Impact

Landslides may occur due to earthquakes, which is due to generally weak soil and rock on sloping terrain. The project site is located on relatively flat terrace and would be balanced on site with minimal sloping. Furthermore, the project site is not located in an area considered to be susceptible to landslides according the California Geological Survey. Therefore, impacts due to landslides would be less than significant. No mitigation is required.

b) Soil Erosion: Less than Significant Impact

As noted in the LRDP EIR, earth-disturbing activities associated with project construction that may result in soil erosion would be temporary. The project would comply with the CBC, which regulates excavation and grading activities, and the National Pollutant Discharge Elimination System (NPDES) general permit for construction activities, which requires preparation of an erosion control plan and implementation of construction best management practices (BMPs) to prevent soil erosion. Such BMPs could include silt fences, watering for dust control, straw-bale check dams, and hydroseeding. The LRDP EIR concluded that with implementation of these routine control measures potential construction-related erosion impacts would be less than significant (LRDP EIR, page 4.5-10). Soil erosion may also occur due to increases in stormwater runoff due to increased impermeable surfaces. However, as discussed in Section 4.8, Hydrology and Water Quality, stormwater runoff velocities would be reduced to preexisting conditions to the extent feasible (MM Hyd-1A). Therefore, impacts due to soil erosion would be less than significant. No mitigation is required.

c) Soil Instability: Less than Significant Impact

If loose or compressible soil materials occur on site, they may be subject to settlement under increased loads. Soil instability may also occur due to an increase in moisture content from site irrigation or changes in drainage conditions. Typical measures to treat such unstable materials involve removal and replacement with properly compacted fill, compaction grouting, or deep dynamic compaction. A site-specific geotechnical investigation would be conducted during the design phase and any recommendations would be implemented in accordance with the CBC. Therefore, impacts associated with unstable materials would be reduced to a less than significant level. No mitigation is required.

d) Expansive Soils: Less than Significant Impact

Expansive topsoils are prevalent on campus and are generally 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 percent swell with an underlying material generally consisting of non-expansive to moderately expansive terrace deposits with a swell ranging from zero to eight percent.

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 geotechnical investigations and soils testing to be conducted as part of the routine final design process would determine the extent of any expansive or compressible soils that occur on the site. Therefore, adherence to the CBC and implementation of the recommendations in the project-specific geotechnical investigation conducted during the design phase would reduce impacts due to expansive soils to a less than significant level. No mitigation is required.

e) Septic Tanks or Alternative Waste Disposal Systems: No Impact

The proposed project is a surface parking lot and would not include restroom facilities. Therefore, the proposed project would not require septic tanks or an alternative waste disposal system and no impact would occur. No mitigation is required.

Mitigation Measures

No mitigation measures are required.

4.6 Greenhouse Gas Emissions

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?				X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?					X

Discussion

In March 2010, the CEQA Guidelines were revised to require analysis of greenhouse gas (GHG) emissions. Because it was not required at the time the 2007 LRDP EIR was adopted, a GHG analysis was not included. GHG emissions are addressed in this section and uses a project-specific Greenhouse Gas Assessment prepared by Michael Baker International, Inc. (Appendix B).

a) Greenhouse Gas Emissions: Less than Significant Impact

Project-related GHG emissions would include emissions from direct and indirect sources. The proposed project would result in direct and indirect emissions of CO_2, N_2O, and CH_4, and would not result in other GHGs that would facilitate a meaningful analysis. Therefore, this analysis focuses on these three forms of GHG emissions. Direct project-related GHG emissions include emissions from construction activities, area sources, and mobile sources, while indirect sources include emissions from electricity consumption, water demand, and solid waste generation. Operational GHG estimations are based on energy emissions from natural gas usage and automobile emissions. Project GHG emissions were calculated using the California Emissions Estimator Model (CalEEMod) version 2016.3.1, which relies on trip generation data, and specific land use information to calculate emissions. As indicated in the Bison Parking Lot Traffic Study (Traffic Study) for the proposed project, prepared by Stantec Consulting Services (dated April 2017), the proposed project would result in approximately 5,503 new daily trips. Table 4.6-1, Greenhouse Gas Emissions, presents the estimated CO_2, N_2O, and CH_4 emissions of the proposed project without GHG-reducing design features and mitigation measures.

Direct Project-Related Sources of Greenhouse Gases

- Construction Emissions. Construction GHG emissions are typically summed and amortized over the lifetime of the project (assumed to be 30 years), then added to the operational emissions.[1] As seen in Table 4.61, the proposed project would result in 217.71 $MTCO_2eq$/yr, which represents 7.26 $MTCO_2eq$/yr when amortized over 30 years.

- Area Source. Area source emissions occur from hearths, architectural coatings, landscaping equipment, and consumer products and were calculated using CalEEMod and project-specific land use data. Area source emissions associated with the proposed parking lot would occur from landscape equipment and architectural coatings (i.e., striping). As noted in Table 4.6-1, the proposed project would result in 0.03 $MTCO_2eq$/year from area source GHG emissions.

- Mobile Source. As noted above, the project would generate 5,503 vehicle trips to the project site at maximum capacity. The project would directly result in 284.74 $MTCO_2eq$/yr of mobile source-generated GHG emissions.

Table 4.6-1
Greenhouse Gas Emissions

Source	**CO_2**	**CH_4**		**N_2O**		**Total Metric Tons of CO_2eq**
	Metric Tons/yr[1]	**Metric Tons/ yr[1]**	**Metric Tons of CO_2eq[2]**	**Metric Tons/yr[1]**	**Metric Tons of CO_2eq[2]**	
Direct Emissions						
Construction (total of 217.71 $MTCO_2eq$ amortized over 30 years)	7.21	0.00	0.05	0.00	0.00	7.26
Area Source	0.02	0.00	0.00	0.00	0.00	0.03
Mobile Source	283.20	0.06	1.54	0.00	0.00	284.74
Total Mitigated Direct Emissions[3]	290.43	0.06	1.59	0	0	292.03
Indirect Emissions						
Energy	92.53	0.00	0.10	0.00	0.24	92.86
Water Demand	0.00	0.00	0.00	0.00	0.00	0.00
Solid Waste Generation	0.00	0.00	0.00	0.00	0.00	0.00
Total Mitigated Indirect	92.53	0.00	0.10	0.00	0.24	92.86

[1] The project lifetime is based on the standard 30 year assumption of the South Coast Air Quality Management District, *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*, October 2008.

Emissions[3]						
Total Mitigated Project-Related Emissions[3]	*384.89 $MTCO_2eq/yr$*					
Mitigated GHG Emissions Exceed Threshold?	***No***					

Notes:
1. Emissions calculated using CalEEMod.
2. CO_2 Equivalent values calculated using the EPA Website, *Greenhouse Gas Equivalencies Calculator*, http://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator, accessed April 2017.
3. Totals may be slightly off due to rounding.

Indirect Project-Related Sources of Greenhouse Gases

- Energy Consumption. Energy consumption emissions were calculated using CalEEMod and project-specific land use data. Electricity would be provided to the project site via Southern California Edison (SCE). The primary use of electricity would be from parking lot lighting. CalEEMod calculates the energy use from lighting in open parking lots. The project would indirectly result in 92.86 $MTCO_2eq$/year due to energy consumption.

- Water Demand. The project would include a minor amount of landscaping throughout the parking lot. However, the water demands for the parking lot landscaping would be minor and energy source emissions associated with water consumption would be nominal.

- Solid Waste. The project would not generate solid waste, as the proposed project is a parking lot. Therefore, the project would not result in an emissions increase from indirect energy impacts due to solid waste.

As depicted in Table 4.6-1, implementation of the proposed project would result in project-related GHG emissions of 384.89 $MTCO_2eq$/yr. Therefore, the project would not exceed the 3,000 $MTCO_2eq$/yr significance threshold and impacts would be less than significant. No mitigation is required.

b) Conflict with a Greenhouse Gas Plan, Policy, or Regulation: No Impact

The UC Sustainable Practices Policy establishes goals and policies to reduce GHG emissions from various sources at the campus. Although construction of the proposed project would increase the amount of GHG emissions generated by the campus, as discussed in Section 2.0, Project Description, the project would incorporate various sustainable project design features (enhanced waste management and water conservations taken during construction, energy compliance for new on-site lighting, preferred parking for EV vehicles, and use of drip irrigation and recycled water for newly planted areas, etc.) in compliance with the UC Sustainable Practices Policy. In order for the campus to reach the carbon neutrality goal of zero emissions of scope 1 and 2 sources by 2025 and scope 3 sources by 2050 as required by the Carbon Neutrality Initiative and the UC Sustainable Practices Policy, the campus is looking into a number of solutions including, but not limited to, energy efficiency projects on the campus and purchasing of offsets.

In addition, UCI adopted a Climate Action Plan (CAP) in 2007, and updated in 2016, in cooperation with AB 32, and has guided an array of climate action protection strategies and projects to reduce UCI GHG emissions. The purpose of this CAP is to identify UCI's long-term vision and commitment to reduce its GHG emissions in support of University of California Sustainability Practices Policy and campus sustainability goals. These commitments include reduction of GHG emissions to 1990 levels by the year 2020 (a reduction of approximately 49 percent from projected emissions), climate neutrality by the year 2025 (for on-site combustion of fossil fuels and purchased electricity), and climate neutrality by the year 2050 (for UCI commuters and University funded air travel). As discussed in 4.6(a) above, the project's GHG emissions would not exceed the 3.0 MTCO2eq per year per service population threshold in compliance with AB 32. Therefore, the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs and no impact would occur. No mitigation is required.

Mitigation Measures

No mitigation measures are required.

4.7 Hazards and Hazardous Materials

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	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?				X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?					X
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?					X

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?				X	
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?					X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?		X			
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?				X	

Discussion

Hazards and hazardous materials issues are discussed in Section 4.6 of the 2007 LRDP EIR.

a) Transport, Use, Disposal of Hazardous Materials: Less than Significant Impact

b) Release of Hazardous Materials: Less than Significant Impact

For the long-term operation of the proposed project, fertilizers, pesticides, paint, asphalt, fuels, and other hazardous materials would be used in limited quantities for maintenance. Implementation of the 2007 LRDP, including this project, would increase hazardous materials use and waste generation on campus; however, UCI policy implemented by the Office of Environmental Health and Safety (EH&S) requires transportation of all hazardous materials conform to all federal, State, and local requirements. Furthermore, due to the project use, significant hazards from materials stored within a parking facility is unlikely.

Temporary, short-term related hazards resulting from the proposed project would include transport, storage, use, and disposal of asphalt, fuels, solvents, paints, thinners, acids, curing compounds, grease, oil, fertilizers, coating materials, and other hazardous substances used during construction. The contractor ensures responsibility, as part of the contract, that hazardous materials and waste are handled, stored, and disposed of in accordance with all applicable federal, State, and local laws and regulations and routine construction control measures (LRDP EIR, page 4.6-7). Therefore, compliance with federal, State, and local regulation would reduce potential impacts from the release of hazardous materials to a less than significant level. No mitigation is required.

c) Proximity to Schools: No Impact

No schools are located within one-quarter mile of the project site. Furthermore, the proposed project is a parking lot with electric vehicle (EV) charging stations, which are not uses that would generate hazardous emissions or handle large quantities of hazardous materials. Therefore, the proposed project is not located near schools and no impact would occur. No mitigation is required.

d) Hazardous Materials Sites: No Impact

Review of the State Department of Toxic Substance Control[1] confirms there are no hazardous materials sites located on the project site. Therefore, the proposed project is not located on a hazardous materials site and no impact would occur. No mitigation is required.

e) Airport Land Use Plan: Less than Significant Impact

The closest airport, John Wayne Airport (JWA), is located three miles northwest of the campus, and is located within JWA's planning area. The Airport Land Use Commission for Orange County has established Runway Protection Zones (RPZ) for JWA, also called Accident Potential Zones (APZ), which define the surrounding areas that are more likely to be affected if an aircraft-related

[1] http://geotracker.waterboards.ca.gov/. Accessed May 15, 2017.

accident were to occur. Those zones do not extend to the campus, including the project site, and 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 campus. Additionally, as reported in the 2007 LRDP EIR, no accidents have occurred near the campus within the past 26 years (page 4.6-33). Therefore, impacts due to the proximity to an airport or private airstrip would be less than significant. No mitigation is required.

f) Private Airstrip: No Impact

No private airstrips are located within the vicinity of the campus. Therefore, because the proposed project is not located near a private airstrip, it would not affect public safety and no impact would occur. No mitigation is required.

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

The contractor would comply with LRDP EIR mitigation measure Haz-6A to ensure sufficient notification to the UCI Fire Marshal to allow coordination of emergency services that may be affected in the event of a road closure (LRDP EIR, page 4.6-34). For operation, all plans are submitted to the UCI Fire Marshal for design review and changes implemented to address any concerns about accessibility for emergency response on or adjacent to the project site. Furthermore, the proposed project during construction and operation would comply with UCI's Emergency Response Plan that addresses roles and responsibilities, communications, training, and procedures in order to respond to emergency situations. Therefore, with implementation of LRDP EIR mitigation measure Haz-6A, potential impacts to emergency response on or surrounding the campus would be reduced to a less than significant impact.

h) Wildland Fires: Less than Significant Impact

The LRDP EIR indicates that areas prone to wildland fire are vegetation communities such as coastal sage scrub and grassland (page 4.6-35). The project site is near open space that includes various types of vegetation communities; however, a surface parking lot would be constructed, which is made of asphalt and concrete and is not susceptible to fire. Therefore, impacts due to wildland fire would be less than significant. No mitigation is required.

Mitigation Measures

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

4.8 Hydrology and Water Quality

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a) Violate any water quality standards or waste discharge requirements?		X			
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)?					X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?		X			
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		X			

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?		X			
f) Otherwise substantially degrade water quality?				X	
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?					X
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?					X
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?				X	
j) Inundation by seiche, tsunami, or mudflow?				X	

Discussion

Hydrology and water quality issues are discussed in Section 4.7 of the 2007 LRDP EIR.

a) *Water Quality Standards: Project Impact Adequately Addressed in LRDP EIR*

Applicable water quality standards developed by the State Water Resources Control Board (SWRCB) and Regional Water Quality Control Board (RWQCB) for storm water are set forth in required permits, including the General Construction Storm Water Permit, which would control pollutants contained in runoff generated from campus properties (LRDP EIR, page 4.17-19).

Potential water quality impacts during the construction would be stockpiled soils and materials stored outdoors on or adjacent to the project sites during construction. Pollutants associated with these construction activities that could result in water quality impacts include soils, debris, other materials generated during site clearing and grading, fuels and other fluids associated with the equipment used for construction, paints and other hazardous materials, concrete slurries, and asphalt materials. These pollutants could impact water quality if washed, blown, or tracked off site to areas susceptible to wash off by storm water or non-storm water and could drain to one or more of the local receiving waters (LRDP EIR, page 4.7-21). Landscaping could also result in water quality impacts due to the use of fertilizers. If discharged, they could adversely affect aquatic plants and animals downstream in receiving waters through a reduction in oxygen levels and an increase in eutrophication (LRDP EIR, page 4.7-21).

The proposed project would comply with the General Construction Storm Water Permit program, which would implement construction control measures to be specified in the project's Storm Water Pollution Prevention Plan (SWPPP) and install and maintain the post-construction BMPs to be specified in the project's Water Quality Management Plan (WQMP). Compliance with the permit would ensure that runoff from the developed site does not violate any water quality standards. Furthermore, potential impacts to San Diego Creek related to the project's post-construction activities would be reduced to below a level of significance with implementation of LRDP EIR mitigation measures Hyd-2A and Hyd-2B.

Therefore, in compliance with the storm water permits described above and implementation of LRDP EIR mitigation measures Hyd-2A and Hyd-2B, construction and post construction impacts would be reduced to a less than significant level.

b) *Groundwater: No Impact*

UCI does not use groundwater and instead is provided water by IRWD. This issue was adequately addressed in the 2007 LRDP Initial Study and further analysis in the EIR was not required (LRDP EIR, page 4.7-27). Therefore, the proposed project would not affect groundwater tables and no impact would occur. No mitigation is required.

c) *Erosion On or Off-site: Project Impact Adequately Address in LRDP EIR*

Features that control run-off volumes and durations to minimize or eliminate erosion and siltation would be depicted on final construction plans. Any slopes would be landscaped and energy dissipaters and other control devices would be incorporated as needed. Drainage control measures would be implemented during rough grading to ensure that discharge volumes and durations are controlled on newly graded channels. Standard construction strategies such as desiltation basins, rip-rap, sandbag chevrons, straw waddles, etc. may be incorporated into the project's SWPPP both during and after grading, if required. Therefore, potential erosion or siltation impacts during and following construction would be reduced to less than significant level through compliance with the conditions of the General Construction Storm Water Permit and LRDP EIR mitigation measures Hyd-2A and Hyd-2B. Therefore, impacts due to erosion would be reduced to a less than significant level.

d) Substantially Alter Drainage Pattern: Project Impact Adequately Address in LRDP EIR

The project site is currently undeveloped and would be converted to a mostly impervious surface increasing the rate and amount of runoff. To avoid significant flooding impacts on or off site, the proposed storm drain system would be designed in accordance with the drainage criteria set forth in the LRDP mitigation measures Hyd-1A. The drainage system would be built to maintain or reduce peak runoff from 25-year and 100-year storm events. Additional hydrological analysis would be conducted as part of the final design process to specify all primary and secondary drainage control facilities required to satisfy flood control criteria, as well as site design, mechanical, structural, and non-structural measures to filter pollutants from site runoff, prior to discharge into the existing storm drain networks. Therefore, with implementation of Hyd-1A, impacts to the drainage system capacity would be reduced to a less than significant level.

e) Drainage System Capacity/Substantial Additional Polluted Runoff: Project Impact Adequately Address in LRDP EIR

Water is anticipated to continue to drain at the low point of the project site along Health Sciences Road to the existing storm drain inlet at the corner of Bison Avenue and Health Sciences Road. Due to the increase in impervious surfaces, additional runoff would be calculated during the design phase and the collection system would be upgraded to increase capacity, if needed. The on-site drainage system, which may include on-site retention basins, would be designed to provide sufficient capacity to manage the level of water runoff anticipated upon completion of construction and a plan would be finalized during the design phase. Therefore, with implementation of Hyd-1A, impacts due to additional polluted runoff would be less than significant.

f) Substantially Degrade Water Quality: Less than Significant Impact

Refer to the previous responses to items 4.8(a) to 4.8(e). There are no other project elements that would affect the water quality of the site or its surroundings. Therefore, in compliance with the NPDES, impacts to water quality would be less than significant. No mitigation is required.

g) Place Housing with a 100-year Flood Hazard Area: No Impact

The campus, including the project site, is located in a FEMA Flood Zone X. This issue was adequately addressed in the 2007 LRDP Initial Study and further analysis in the EIR was not required (LRDP EIR, page 4.7-27). Therefore, the proposed project would not place housing within a 100-year flood hazard area no impact would occur. No mitigation is required.

h) Place Structures within a 100-year Flood Hazard Area: No Impact

Because there are no 100-year flood hazard areas on the campus, the proposed 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 EIR was not required (LRDP EIR, page 4.7-27). Therefore, the proposed project would not place structures in a 100-year flood hazard area and no impact would occur. No mitigation is required.

i) Expose People or Structures to a Significant Risk Involving Flooding: Less than Significant Impact

Because the project site is not within a levee or dam inundation area, the proposed project would not expose people or structures to risk due to flooding. The LRDP EIR determined that it is unlikely that flooding because of dam or levee failure would have an effect on the campus due to its height above mean sea level (msl). This issue was adequately addressed in the 2007 LRDP Initial Study and further analysis in the EIR was not required (LRDP EIR, page 4.7-27). Therefore, impacts due to exposure of people or structures to flooding would be less than significant. No mitigation is required.

j) Seiche, Tsunami, or Mudflow: Less than Significant Impact

The campus is located approximately three miles from the Pacific Ocean where sufficient evacuation notice would be provided by the West Coast and Alaska Tsunami Warning Center in the occurrence of a tsunami. The site is not located in an area with potential for seiche and is relatively flat, which is not conducive for mudflows (LRDP EIR, pages 4.7-24 through 25). Therefore, impacts due to exposure of people or structures to seiche, tsunami, or mudflow would be less than significant. No mitigation is required.

Mitigation Measures

Hyd-1A: As early as possible in the planning process of future projects that implement the 2007 LRDP and would result in land disturbance of 1 acre or greater, and for all development projects occurring on the North Campus in the watershed of the San Joaquin Freshwater Marsh, a qualified engineer shall complete a drainage study. Design features and other recommendations from the drainage study shall be incorporated into project development plans and construction documents. Design features shall be consistent with UCI's Storm Water Management Program, shall be operational at the time of project occupancy, and shall be maintained by UCI. At a minimum, all drainage studies required by this mitigation measure shall include, but not be limited to, the following design features:

Site design that controls runoff discharge volumes and durations shall be utilized, 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.

Measures that control runoff discharge volumes and durations shall be utilized, where applicable and feasible, on manufactured slopes and newly-graded drainage channels, such as energy dissipaters, revegetation (e.g., hydroseeding and/or plantings), and slope/channel stabilizers.

Hyd-2A: Prior to initiating on-site construction for future projects that implement the 2007 LRDP, UCI shall approve an erosion control plan for project construction. The plan shall include, but not be limited to, the following applicable measures to protect downstream areas from sediment and other pollutants during site grading and construction:

- Proper storage, use, and disposal of construction materials.
- Removal of sediment from surface runoff before it leaves the site through the use of silt fences, gravel bags, fiber rolls or other similar measures around the site perimeter.
- Protection of storm drain inlets on-site or downstream of the construction site through the use of gravel bags, fiber rolls, filtration inserts, or other similar measures.
- Stabilization of cleared or graded slopes through the use of plastic sheeting, geotextile fabric, jute matting, tackifiers, hydro-mulching, revegetation (e.g., hydroseeding and/or plantings), or other similar measures.
- Protection or stabilization of stockpiled soils through the use of tarping, plastic sheeting, tackifiers, or other similar measures.
- Prevention of sediment tracked or otherwise transported onto adjacent roadways through use of gravel strips or wash facilities at exit areas (or equivalent measures).
- Removal of sediment tracked or otherwise transported onto adjacent roadways through periodic street sweeping.
- Maintenance of the above-listed sediment control, storm drain inlet protection, slope/stockpile stabilization measures.

Hyd-2B: Prior to project design approval for future projects that implement the 2007 LRDP and would result in land disturbance of 1 acre or more, the UCI shall ensure that the projects include the design features listed below, or their equivalent, in addition to those listed in mitigation measure Hyd-1A. Equivalent design features may be applied consistent with applicable MS4 permits (UCI's Storm Water Management Plan) at that time. All applicable design features shall be incorporated into project development plans and construction documents; shall be operational at the time of project occupancy; and shall be maintained by UCI.

- All new storm drain inlets and catch basins within the project site shall be marked with prohibitive language and/or graphical icons to discourage illegal dumping per UCI standards.

- Outdoor areas for storage of materials that may contribute pollutants to the storm water conveyance system shall be covered and protected by secondary containment.

- Permanent trash container areas shall be enclosed to prevent off-site transport of trash, or drainage from open trash container areas shall be directed to the sanitary sewer system.

- At least one treatment control is required for new parking areas or structures, or for any other new uses identified by UCI as having the potential to generate substantial pollutants. Treatment controls include, but are not limited to, detention basins, infiltration basins, wet ponds or wetlands, bio-swales, filtration devices/inserts at storm drain inlets, hydrodynamic separator systems, increased use of street sweepers, pervious pavement, native California plants and vegetation to minimize water usage, and climate controlled irrigation systems to minimize overflow. Treatment controls shall incorporate volumetric or flow-based design standards to mitigate (infiltrate, filter, or treat) storm water runoff, as appropriate.

4.9 Land Use and Planning

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a) Physically divide an established community?					X
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?					X
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?					X

Discussion

Land use and planning issues are discussed in Section 4.8 of the 2007 LRDP EIR.

a) Divide an Established Community: No Impact

The project site is designated in the 2007 LRDP as Income-Producing Inclusion Area, which allows for parking facilities and support uses. The Gavin Herbert Eye Institute and a surface parking lot lies to the north across Bison Avenue; Environmental Health and Safety, an electrical substation, and open space lie to the east across Health Sciences Road; and the University Research Park lies to the west and south across California Avenue. The addition of a parking lot would be consistent with existing surrounding uses.

The proposed project would not affect the land use pattern of the surrounding community, either on or off campus. No existing pedestrian paths, bikeways, or streets would be removed or modified as part of the project. Therefore, the proposed project would not divide an established community and no impact would occur. No mitigation is required.

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

As discussed in Section 2.0, Project Description, the applicable land use plan is the 2007 LRDP and the University is the only agency with land use jurisdiction over projects located on the campus. As stated in 4.9(a), the project site is designated Income-Producing Inclusion Area in the 2007 UCI LRDP, which allows for parking facilities and support uses. Therefore, the proposed project would not conflict with an applicable land use plan and no impact would occur. No mitigation is required.

c) Conflict with an Applicable Conservation Plan: No Impact

The project site is not located within a Habitat Conservation Plan, Natural Community Conservation Plan, or any other land conservation plan. Therefore, the proposed project would not conflict with an applicable conservation plan and no impact would occur. No mitigation is required.

Mitigation Measures

No mitigation measures are required.

4.10 Noise

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	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?					X
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?		X			
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				X	
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		X			
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise					X

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?					X

Discussion

Noise issues are discussed in Section 4.9 of the 2007 LRDP EIR.

a) Noise Standards: No Impact

There are no quantitative standards applicable to the proposed project. However, although the University is not required to comply with local regulations, the project would be consistent with the City of Irvine requirements regarding construction hours. Construction activities would be limited to the hours of 7:00 AM to 7:00 PM Monday through Friday, 9:00 AM to 6:00 PM on Saturdays, and no construction on Sundays or federal holidays. Therefore, noise impacts would be less than significant with respect to exposure of person to or generation of noise levels in excess of standards. No mitigation is required.

b) Groundborne Vibration: Project Impact Adequately Addressed in the LRDP EIR

The long-term operation of the proposed project, a surface parking lot to be used by students, faculty, staff, and temporary guests, would not involve railroads or substantial heavy truck operations that would generate ground-borne vibration that could be felt at surrounding uses. Therefore, the proposed project would not cause long-term vibration impacts at surrounding uses and no impact would occur.

As stated in Section 2.0, Project Description, construction of the proposed project would require the use of demolition equipment; however, pile driving would not be necessary. Construction may create a nuisance level of vibration-generated noise to existing adjacent uses. Therefore, with implementation of LRDP EIR Noi-2A, which implements standard construction noise measures, impacts due to groundborne vibration would be reduced to a less than significant level.

c) *Permanent Ambient Noise: Less than Significant Impact*

The proposed project would construct a surface parking lot adjacent to existing development. Existing ambient noise sources in the immediate vicinity of the project site include vehicular traffic from the Bison Avenue, California Avenue, and Health Sciences Road.

As discussed in Section 4.14, Transportation and Traffic, the proposed project would not result in an increase in population and would not increase off-campus traffic volumes. Instead, it would alter traffic volumes in the immediate area on-campus. Due to the relatively small volume of traffic expected to be associated with the operation of the project, which preexists elsewhere on-campus, related traffic noise is not expected to result in substantial permanent increase in ambient noise levels in the project vicinity. Long-term noise would be generated by vehicles coming to and leaving the proposed parking lot, vehicles starting, and car doors closing. Currently, parking lots are located to the north, east, and south of the project site, and Health Sciences Road is used for street parking. Because of the level of traffic noise from the adjacent roadways, additional noise from the operation of the proposed project would be negligible. Therefore, impacts to permanent ambient noise levels would less than significant. No mitigation is required.

d) *Temporary Ambient Noise: Project Impact Adequately Addressed in the LRDP EIR*

Project construction 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 would 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 would likely be required during the grading phase. Construction related truck traffic would comply with the City of Irvine's Designated and Restricted Truck Routes.

As indicated in the LRDP EIR, the project would generate noise that could expose nearby receptors to elevated noise levels during its approximately five-month construction period. The magnitude of the impact would depend on the type and duration of the activity, type of construction equipment used, distance between the noise source and receiver, and intervening structures, topography, and barriers. Noise generated by the types of construction equipment listed above would range from 60 to 90dBA at 50 feet from the source and propagates as a point source that decays at a rate of 6dB per doubling of distance from the source, and project construction activities would be expected to be audible in the immediate area (LRDP EIR, page 4.9-32). Therefore, LRDP EIR mitigation measure Noi-2A would limit construction operations to daytime hours, require proper equipment maintenance and muffling devices, and place restrictions on weekend construction activities, which would reduce temporary noise impacts to a less than significant level.

e) *Public Airport Noise: No Impact*

As discussed in the 2007 LRDP EIR (page 4.9-33), the nearest airport, John Wayne, 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. No mitigation is required.

f) Private Airport Noise: No Impact

There are no private airstrips in the vicinity of the campus. Therefore, the proposed project would not be subject to excessive noise levels due to a private airport and no impact would occur. No mitigation is required.

Mitigation Measures

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

i. Noise-generating construction activities occurring Monday through Friday shall be limited to the hours of 7:00 am to 7:00 pm, except during summer, winter, or spring break at which construction may occur at the times approved by UCI.

ii. Noise-generating construction activities occurring on weekends in the vicinity of (can be heard from) off-campus land uses shall be limited to the hours of 9:00 am to 6:00 pm on Saturdays, with no construction occurring on Sundays or holidays.

iii. Noise-generating construction activities occurring on weekends in the vicinity of (can be heard from) on-campus residential housing shall be limited to the hours of 9:00 amto 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.

4.11 Population and Housing

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	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)?					X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?					X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?					X

Discussion

Population and housing issues are discussed in Section 4.10 of the 2007 LRDP EIR.

a) Induce Substantial Population Growth: Less than Significant Impact

The proposed project is a surface parking lot that would serve faculty, staff, students, and visitors. Because the proposed project is a parking lot, it would not directly induce population growth. Furthermore, it is replacement of lost parking stalls that resulted from prior on-campus infill development and would not indirectly induce population growth. Therefore, the proposed project would not induce population growth directly or indirectly and no impact would occur. No mitigation is required.

b) Displace Existing Housing: No Impact

c) Displace a Substantial Number of People: No Impact

The project site is a vacant lot, and no existing housing would be demolished during construction. Therefore, the proposed project would not displace people or housing that would require the construction of replacement housing elsewhere and no impact would occur. No mitigation is required.

Mitigation Measures

No mitigation measures are required.

4.12 Public Services

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	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?				X	
b) Police protection?				X	
c) Schools?				X	
d) Parks?				X	
e) Other public facilities?				X	

Discussion

Public service issues are discussed in Section 4.11 of the 2007 LRDP EIR.

a) Fire Protection: Less than Significant

Fire protection and emergency response services to the campus are provided by the Orange County Fire Authority (OCFA). The primary responder serving the campus, OCFA Fire Station #4, is located north of the campus on the corner of California and Harvard Avenues. Of the station's calls, UCI generated 923 calls, or approximately 38%, during 2016. According to an analysis conducted by OCFA in November 2006, this station had adequate capacity to accommodate existing demand on the main campus. Built in 1966, the station has no current plans for its expansion (LRDP EIR, page 4.11-6).

As discussed in Section 4.11, Population and Housing, the proposed project is a parking lot and would not construct new housing nor require additional staff that would increase the need for fire protection services on the campus. Furthermore, the project site is located within a five travel minute coverage area by OCFA. In 2016, the average response time to UCI was six minutes and 56 seconds, which is within the standard adopted by OCFA where a unit should be on-site within seven minutes and 20 seconds for 80 percent of emergency calls.[1]

UCI employs a State Fire Marshal whom is responsible for the campus fire prevention practices and provides services such as plan review and construction inspections. The UCI Fire Marshal reviews and approves all development plans for each new campus project in accordance with California building and fire codes (LRDP EIR, page 4.11-7). Therefore, the proposed project would not require the need for new fire protection facilities and impacts to services would be less than significant. No mitigation is required.

b) Police Protection: Less than Significant

The UCI Police Department (UCIPD) is located in the Public Services building on the East Campus approximately one mile west of the project site. The UCIPD provides all police services (all patrol, investigation, crime prevention education, and related law enforcement duties) for the campus (LRDP EIR, page 4.11-3).

As discussed in Section 4.11, Population and Housing, the proposed project would not induce population growth and would not result in an increase in demand for police services. Furthermore, there are no current plans to expand or construct additional police facilities on the campus. Therefore, the proposed project would not require the construction of new police facilities and impacts to services would be less than significant. No mitigation is required.

c) Schools: Less than Significant

The Irvine Unified School District (IUSD) provides kindergarten through grade 12 (k-12) public education services for school age children residing on or near the UCI campus. As discussed above and in Section 4.11, Population and Housing, the proposed project would not directly induce population growth. Therefore, the proposed project would not require the need for new off-campus educational facilities and impacts to services would be less than significant. No mitigation is required.

d) Parks: Less than Significant Impact

The proposed project is a surface parking lot and would not induce population growth. No parks or recreational uses are proposed or needed to support the project. Therefore, impacts to parks would be less than significant. No mitigation is required.

e) Other Public Facilities: Less than Significant

As discussed above and in Section 4.11, Population and Housing, the proposed project would not induce population growth. Furthermore, public facilities, such as libraries, exist on-campus and

[1] http://www.ocfa.org/Uploads/Orange%20County%20Fire%20Authority%20SOC_FINAL.pdf. Accessed July 18, 2017.

would not result in the need for the construction of new facilities within the surrounding community. Therefore, impacts to other public facilities would be less than significant. No mitigation is required.

Mitigation Measures

No mitigation measures are required.

4.13 Recreation

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	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?					X
b) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?					X

Discussion

Recreation issues are discussed in Section 4.12 of the 2007 LRDP EIR.

a) Physically Deteriorate Existing Facilities: No Impact

As discussed in Section 4.11, Population and Housing, the proposed project would serve existing on-campus faculty, staff, and student populations and provide temporary visitor parking for existing programs, and construction of a surface parking lot project would not directly induce population growth. Therefore, because the proposed project serves existing on-campus uses, no impact to recreational facilities would occur. No mitigation is required.

b) Construction of Recreational Facilities: No Impact

The proposed project would construct a surface parking lot and associated infrastructure, and recreational facilities are not included in the scope. Therefore, no impacts due to construction of recreational facilities would occur. No mitigation is required.

Mitigation Measures

No mitigation measures are required.

4.14 Transportation/Traffic

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	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?				**X**	
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?					**X**
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?					**X**

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X	
e) Result in inadequate emergency access?				X	
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?					X

Discussion

Transportation and traffic issues are discussed in Section 4.13 of the 2007 LRDP EIR. This analysis is based on the traffic study prepared by Austin-Foust Associates, Inc. (now Stantec Consulting Services, Inc.) in 2007. In addition, a 2017 project-level study was prepared by Stantec Consulting Services, Inc. (Appendix C).

a) Performance of the Circulation System: Less than Significant Impact

The proposed project is located in the UCI West Campus and is adjacent to the Academic Core. The deign-build project consists of the construction of an approximately 1,000 space paved parking lot. The project does not anticipate any significant increase in campus population, faculty, staff, or students as a result of this project. Also, the proposed project does not directly generate new traffic as the traffic to the new parking location would be a result of redistribution of traffic from other lots. However, a worst-case scenario is considered for the project build out conditions analysis by assuming all traffic at the parking lot to be new trips without giving credit to the redistribution of traffic.

The parking lot is proposed to have two driveways on the Health Sciences Road to access the parking lot. One is a full-access driveway approximately 450 feet north of California Avenue, opposite of an existing driveway that serves a gated area that serves the Environmental Health and Safety facility, the other is a right-turn-in/right-turn-out only driveway approximately 410 feet south of Bison Avenue.

Trip generation rates for the parking lot were derived based on conditions assuming the lot is fully utilized, which in practice is when a lot is approximately 85 percent occupied. The ADT counts collected on Bison Avenue (just east of California Avenue) were used as the basis for the inbound and outbound trip patterns for this portion of the campus. A summation of inbound trips minus outbound trips indicate that the parking lot would reach its peak occupancy in the early afternoon, around approximately 1:30 PM to 2:00 PM. The summation of all inbound and outbound trips indicates that there would be a maximum volume of approximately 5,500 ADT utilizing the lot on a typical weekday, with the AM peak volume of traffic occurring between 8:45 AM and 9:45 AM, and the PM peak volume of traffic occurring between 4:30 PM and 5:30 PM (see Table 4.14-1 for summary).

Table 4.14-1
Proposed Project Trip Generation Summary

Land Use	**Amount**	**AM Peak Hour (8:45 AM - 9:45 AM)**			**PM Peak Hour (4:30 PM - 5:30 PM)**			**ADT**
		In	**Out**	**Total**	**In**	**Out**	**Total**	
Trip Generation								
Bison Parking Lot	1,000 Spaces	274	127	401	100	281	381	5,503

Note:
ADT = average daily traffic

The trips accessing the parking lot would use Bison Avenue, California Avenue and West Peltason Drive to access the surrounding circulation system.

Project trip distribution was determined based on the observed traffic patterns of traffic in the area. Approximately 65 percent of project trips are oriented toward west on Bison Avenue continuing along California Avenue and SR-73. Approximately 35 percent of project trips are oriented toward east on Bison Avenue and continuing along West Peltason Drive and East Peltason Drive.

Table 4.14-2 illustrates the general distribution of trips for the proposed project.

Existing Plus Project Conditions

Impacts from the full project are analyzed under existing conditions. Existing-plus-project peak hour volumes were obtained by adding the project-generated peak hour trips to the existing intersection turning movement volumes at the study intersections. A worst-case scenario is considered for the project analysis by assuming all the traffic at the parking lot to be new trips without giving credit to the redistribution of traffic to this location from other lots.

The existing and existing-plus-project LOS based on existing lane configurations are summarized in Table 4.14-2.

Table 4.14-2
Existing Plus Project Intersection LOS Summary

Intersection	Existing				Existing + Project			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	ICU/Delay	LOS	ICU/Delay	LOS	ICU/Delay	LOS	ICU/Delay	LOS
ICU Methodology – Signalized Intersections								
1. SR-73 NB Ramps & Bison Ave	0.53	A	0.63	B	0.57	A	0.67	B
2. California Ave & Bison Ave	0.51	A	0.61	B	0.56	A	0.69	B
3. W. Peltason Dr & Bison Ave	0.52	A	0.63	B	0.56	A	0.66	B
HCM Delay Methodology – Stop-Controlled Intersections								
4. W Peltason Dr/Academy & W Peltason Dr	15 sec	C	40 sec	E	17 sec	C	47 sec	E

The signalized intersections continue to operate at LOS A during the AM and LOS B during the PM peak hours with the addition of the proposed project traffic based on the ICU methodology. The project would add less than 0.04 to the ICU value at the intersections, and the project has no significant impact.

The stop-controlled study intersection of West Peltason Drive and Academy Way continues to operate at LOS C during the AM and at LOS E during the PM peak hour with the addition of the proposed project traffic based on the HCM delay methodology. Although the intersection operates at LOS E as a stop-controlled intersection during existing conditions, it has previously been identified for installation of a traffic signal in LRDP, which would improve LOS.

LRDP Build-Out with Project Analysis

The LRDP build-out with and without project ICU values and LOS of the study intersections are summarized in Table 4.14-3 below. A worst-case scenario is considered for the project analysis by assuming all traffic at the parking lot to be new trips without giving credit to the redistribution of traffic to this location from other lots.

The intersections operate at an acceptable LOS C or better during the AM and PM peak hours except the intersection of California Avenue and Bison Avenue which operates at LOS D during AM peak hour with the addition of the project. Even though the level of service changed from LOS C to LOS D it is not considered a significant impact because the performance standard applied in this study is LOS D. Therefore, the project has no significant impact on the study intersections under LRDP build-out conditions and no mitigation is required.

Table 4.14-3
LRDP Build-out with-Project Intersection LOS Summary

Intersection	LRDP Build-out No-Project	LRDP Build-out with-Project

	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
ICU Methodology – Signalized Intersections								
1. SR-73 NB Ramps & Bison Ave	0.59	A	0.63	B	0.64	B	0.67	B
2. California Ave & Bison Ave	0.78	C	0.72	C	0.83	D	0.80	C
3. W. Peltason Dr & Bison Ave	0.69	B	0.67	B	0.73	C	0.70	B
4. W Peltason Dr/Academy & W Peltason Dr	0.55	A	0.69	B	0.58	A	0.71	C

Conclusions

The proposed Bison parking lot project would consist of the construction of an approximately 1,000 space paved parking lot. The purpose of this study is to determine the amount of traffic generated by the proposed project and to analyze the impacts of the project on the affected portions of the circulation system.

The UCI campus is located in the southwest portion of the City of Irvine and is adjacent to the City of Newport Beach. The project site is located in the area generally bounded by Bison Avenue, California Avenue and Health Sciences Road. No significant increase in campus population, faculty, staff, or students is anticipated as a result of this project. The parking lot would be constructed to accommodate current and future parking needs and to ease the loss of parking spaces in other areas on campus.

Since the proposed project doesn't directly generate new traffic (i.e., the parking lot results in a redistribution of traffic to the new parking location), the study area is focused on the roadways in the immediate vicinity of the parking lot. Outside of this immediate area, and on roadways within the neighboring jurisdictions of the City of Newport Beach and Irvine, traffic volumes are not anticipated to change appreciably due to the proposed project. However, a worst-case scenario is considered for the project analysis by assuming all traffic at the parking lot to be new trips without giving credit to the redistribution of traffic to this location from other lots.

The project would generate approximately 5,503 trips daily, of which 401 would occur during the AM peak hour and 381 would occur during the PM peak hour. These peak hour trips were assigned to the surrounding street system and added to existing traffic volumes and to the model forecasts to determine the project impacts during existing conditions and LRDP build-out conditions.

Under existing conditions, all signalized study intersections operate at LOS B or better during the AM and PM peak hours based on the ICU values. The stop-controlled study intersection at West Peltason Drive and Academy Way currently operates at LOS C and LOS E during the AM and PM peak hour respectively. The LOS remains the same even with the addition of the project. This intersection has been identified for the installation of a traffic signal in the 2007 LRDP which would improve LOS.

Under LRDP build-out conditions, all study intersections would operate at LOS C or better except the intersection of California Avenue and Bison Avenue which operates at LOS D with the addition of the project during the AM peak hour based on ICU values. Even though the level of service changed from LOS C to LOS D, it is not considered a significant impact because the performance standard applied in this study is LOS D. Therefore, it can be concluded that the project has less than significant impact on the study intersections.

In conclusion, the proposed project has no significant impact on the surrounding circulation system under existing or LRDP build-out conditions, and no mitigation is required.

b) Conflict with Congestion Management Program: No Impact

The nearest elements of the Orange County Congestion Management Plan (CMP) highways and arterials network are Jamboree Road and MacArthur Boulevard, located approximately 1.5 miles north of 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 VI page 4.13-23). The proposed project, as discussed in Section 4.11, Population and Housing, and above in 4.14(a), would not directly increase population and instead would reallocate traffic to another area of the campus. Therefore, because the CMP intersections are located off campus, an increase in traffic would not occur. Therefore, it would not conflict with the CMP and no impact would occur. No mitigation is required.

c) Air Traffic Patterns: No Impact

The proposed project site is located approximately two miles south 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 EIR VII page 25). Therefore, the proposed project would not affect air traffic patterns and no impact would occur. No mitigation is required.

d) Hazards Due to a Design Feature: Less than Significant Impact

All of the project's transportation network would be designed in accordance with the same standards applied to other elements of the campus transportation network and would have no unique aspects not anticipated in the LRDP EIR. The 2007 LRDP EIR determined no impacts would occur from hazards due to design features or incompatible uses, which was addressed in the LRDP Initial Study (LRDP EIR, page 4.13-61). Therefore, impacts due to potential hazards of a design feature would be less than significant. No mitigation is required.

e) Inadequate Emergency Access: Less than Significant Impact

Project construction is not anticipated to require complete closure of any adjacent streets, and access by fire protection, ambulances, police, or other emergency vehicles would be maintained for the active construction zones and surrounding land uses. If any road closures do occur during construction, plans would be reviewed by the UCI Fire Marshal prior to ensure adequate emergency access at all times. Therefore, with review of the proposed project by the UCI Fire Marshal, impacts related to emergency access would be less than significant. No mitigation is required.

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

No public transit or bicycle facilities would be constructed or demolished as part of the project. A pedestrian sidewalk would be constructed along Health Sciences Road as one does not currently exist on the west side of the street. This sidewalk would not conflict with adopted plans nor would it decrease performance or safety of alternative modes of transportation, and instead would increase walkability and accessibility in the surrounding area. Therefore, no impact to existing public transit, bicycle, or pedestrian facilities would occur. No mitigation is required.

Mitigation Measures

No mitigation measures are required.

4.15 Utilities and Service Systems

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?					X
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?				X	
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?				X	
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X	

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?				X	
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?				X	
g) Comply with applicable federal, state, and local statutes and regulations related to solid waste?					X

Discussion

Utilities and service systems issues are discussed in Section 4.14 of the 2007 LRDP EIR.

a) Regional Water Quality Control Board Wastewater Treatment Requirements: No Impact

The proposed project would not generate wastewater and would not connect to a public sewer system. Therefore, no impacts to water or wastewater treatment facilities would occur. No mitigation is required.

b) Construction of New Water or Wastewater Treatment Facilities or Expansion of Existing Facilities: Less than Significant Impact

The proposed project would not generate wastewater and no connection to the public sewer system is required. However, the project would install a six-inch recycled water line to provide irrigation to landscaped areas along Bison Avenue. Therefore, due to the minimal amount of water required to operate the project, no new water facilities or water system upgrades are needed to serve the project and impacts would be less than significant. No mitigation is required.

c) Stormwater Drainage Facilities: Less Than Significant Impact

As discussed in Section 4.8, Hydrology and Water Quality, existing hydrology patterns on the site would be maintained to the extent practical as determined during the project's final design stage, which may include the use of catch basins to convey runoff from the project. Stormwater facilities are regulated by the MS4 requirements, including stormwater collection and treatment BMPs, which would reduce physical impacts associated with the construction of new stormwater drainage facilities. Therefore, in compliance with the MS4 permit, impacts due to stormwater drainage facilities would be less than significant. No mitigation is required.

d) Water Supplies: Less than Significant Impact

The 2015 IRWD Urban Water Management Plan (UWMP, 2016) projects district-wide water supply availability and demand through 2035. IRWD staff in consultation with UCI reviewed projected water service demand related to implementation of the 2007 LRDP for consistency with the 2005 UWMP and concluded that water supply reliability would not be compromised (LRDP EIR, page 4.14-17). The 2007 LRDP buildout has been included in the recent 2015 UWMP. Because the proposed project does not increase campus population or estimated water demand beyond what was analyzed in the 2007 LRDP EIR, the irrigation needs throughout the campus would continue to be fully met through reclaimed water supplies. Furthermore, the proposed project would not significantly increase on-campus population.

Although implementation of the 2007 LRDP would result in less than significant impacts to water supply, UCI continues to cooperatively and continually work with IRWD to reduce domestic water demand on campus consistent with UCI sustainability goals, as follows:

- Continue to use reclaimed water for all landscape irrigation uses where feasible and permissible by law.
- Work with IRWD to identify opportunities for additional uses of reclaimed water on-campus to reduce domestic water demand including central utility plant applications, dual plumbing systems in buildings, and other applications to reduce demand for domestic water.
- Work collaboratively with IRWD to identify feasible programs, projects, and measures to reduce domestic water demand.

Therefore, because the proposed project's reclaimed water demand is consistent with the projections developed for the 2007 LRDP EIR and anticipated in the UWMP forecasts, impacts would be less than significant. No mitigation is required.

e) Wastewater Capacity: Less than Significant Impact

The proposed project would not generate wastewater and would not connect to a public sewer system. Therefore, no impacts to wastewater capacity would occur. No mitigation is required.

f) Landfill Capacity: Less than Significant Impact

The Frank R. Bowerman Landfill is permitted to receive a daily maximum of 11,500 tons per day and is expected to close in the year 2053. The Olinda Landfill and Prima Deshecha Landfill also serve the County of Orange, which are utilized if the Frank R. Bowerman Landfill reaches its daily capacity. Olinda Landfill permits 8,000 tons daily with an expected closure in 2030; Prima Deshecha Landfill is scheduled to close in 2067 and permits 4,000 tons daily.

Orange County Waste & Recycling and the three landfills are in compliance with the California Integrated Waste Management Act of 1989 (AB 939), which requires each jurisdiction to maintain 15 years of solid waste disposal capacity. Therefore, based on available landfill capacity, impacts would be less than significant. No mitigation is required.

g) Solid Waste Regulations: No Impact

The University of California is not subject to Assembly Bill 939 or other local agency regulations pertaining to solid waste management. Nonetheless, the University of California has adopted the Sustainable Practices Policy that requires campuses to undertake aggressive programs to reduce solid waste generation and disposal (LRDP EIR, 4.14-20). This includes voluntary compliance with the State Agency Integrated Waste Management Plan and prioritization of waste and recycling for LEED credits, including a life cycle assessment for reuse of building materials. Furthermore, under the UC Sustainable Practices Policy Section F, Recycling and Waste Management, requires the ultimate goal of zero waste by 2020. As of 2016, the campus has an 81 percent diversion rate from local landfills that has been achieved through recycling, composting, and reusing. Continued outreach programs, increased sustainable purchasing options, and proper hazardous waste disposal have the campus on track to reach 95 percent, or “zero waste,” by 2020. 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. Therefore, the proposed project would not violate solid waste regulations and no impact would occur. No mitigation is required.

Mitigation Measures

No mitigation measures required.

4.16 Mandatory Findings of Significance

Issues	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant with Project-level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?				X	
b) 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 probably future projects?)				X	

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

a) Degrade the Environment, Reduce Habitat or Wildlife Populations, Eliminate Examples of California History: Less than Significant Impact

As discussed under Sections 4.1 through 4.15, no significant environmental impacts that are not mitigatable were identified in the responses to questions regarding project effects. The proposed project does contain sensitive biological resources that would be impacted; however, project-level mitigation measure BR-2 would reduce impacts to a less than significant level by obtaining appropriate permits, which would require implementation of a habitat replacement program. There are no known cultural resources on the previously developed sites, and in the unexpected event that a prehistoric or archaeological resource is discovered during grading, compliance with LRDP EIR mitigation measures Cul-1C, Cul-4A, Cul-4B, and Cul-4C would reduce impacts to a less than significant level.

b) Cumulatively Considerable Impacts: Less Than Significant Impact

Long-term environmental consequences resulting from the cumulative effect of completing development through implementation of the 2007 LRDP were thoroughly evaluated in the 2007 LRDP EIR. As discussed in Section 2.0, Project Description, the project is consistent with the LRDP land use policies. No new or increased severity of impacts beyond what was anticipated in the 2007 LRDP EIR have been identified as a result of the analysis completed for this IS/MND. As discussed in Sections 4.1 through 4.15, project-level impacts have been determined to be less than significant, no impact, or mitigated to a less than significant level. Therefore, the proposed project would not result in cumulatively considerable impacts.

c) Direct or Indirect Effects on Humans: Less Than Significant Impact

No significant impacts on human beings have been identified in this IS/MND. Short-term adverse impacts during the 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 EIR and project-specific mitigation. There is no evidence of site contamination with hazardous wastes or substances and the proposed project would not emit hazardous air emissions or involve consumption, generation, transport or disposal of dangerous quantities of hazardous materials or wastes. Access to the project site by emergency vehicles would be maintained throughout construction, and the developed site would not constrain emergency access to any portion of the campus. Therefore, impacts due to direct or indirect effects on humans would be less than significant.

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APPENDIX A

Air Quality Assessment

AIR QUALITY ASSESSMENT

UCI Bison Parking Lot Project

PREPARED BY:

Michael Baker INTERNATIONAL

AIR QUALITY ASSESSMENT

for the

UCI Bison Parking Lot Project

University of California, Irvine

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May 31, 2017

JN 159188

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SYMBOLS, ABBREVIATIONS, AND ACRONYMS

AB	Assembly Bill
AQMP	Air Quality Management Plan
Basin	South Coast Air Basin
BAU	business as usual
CAAQS	California Ambient Air Quality Standards
CAFE	corporate average fleet fuel economy
CalGreen	California Green Building Standards
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CH_4	Methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2eq	carbon dioxide equivalent
EAP	Energy Action Plan
EECAP	energy efficiency climate action plans
EPA	U.S. Environmental Protection Agency
FCAA	Federal Clean Air Act
GHG	greenhouse gas
GSF	gross square foot
GWP	Global Warming Potential
H_2O	water vapor
HCFCs	Hydrochlorofluorocarbons
HFCs	Hydrofluorocarbons
hp	horsepower
HPLV	high-pressure-low-volume
HVAC	heating, ventilation, and air conditioning
I-4	Environmental Justice Enhancement Initiative
IPCC	International Panel for Climate Change
lbs	pounds
LEED	Leadership in Engineering and Environmental Design
LOS	level of service
LSTs	Localized Significance Thresholds
Metro	Los Angeles County Metropolitan Transportation Authority
MMT	million metric tons
mpg	miles per gallon
MPO	metropolitan planning organization
$MTCO_2eq$	metric tons of carbon dioxide equivalents
MU-T	Mixed-Use Transit
N_2O	nitrous oxide

NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
OAL	Office of Administrative Law
O_3	ozone
OPR	Office of Planning and Research
PFCs	Perfluorocarbons
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppm	parts per million
PST	Pacific Standard Time
RCP	Regional Comprehensive Plan
RH	relative humidity
ROG	Reactive Organic Gasses
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCS	Sustainable Community Strategy
SF_6	Sulfur hexafluoride
SGVCOG	San Gabriel Valley Council of Governments
SGVEWP	San Gabriel Valley Energy Wise Partnership
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_x	sulfur oxides
SRA	Source receptor Area
UNFCCC	United Nations Framework Convention on Climate Change
$\mu g/m^3$	micrograms per cubic meter
UV-B	ultraviolet B rays
VMT	vehicle miles traveled
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

The purpose of this Air Quality Assessment is to evaluate potential short- and long-term air quality impacts resulting from implementation of the proposed Bison Parking Lot Project ("project" or "proposed project") on the University of California, Irvine (UCI) campus.

The proposed project would construct an approximately 330,000-square-foot surface parking lot to accommodate up to 1,000 spaces on a 7.56-acre vacant site bordered by Bison Avenue, Health Sciences Road, and California Avenue. The project scope would include vegetation clearing, grading, asphalt paving, construction of new sidewalks and road access, installation of lighting to allow 24-hour use and infrastructure for Electric Vehicle (EV) charging, landscaping, and irrigation. The lot would be constructed to allow for the future installation of an information booth and security access gate. Vehicular access to the site would be provided via two driveways on Health Sciences Road. The first driveway would be considered a full-access driveway and would be located approximately 450 feet north of California Avenue, opposite of an existing driveway that serves a gated area. The second driveway would be categorized as a right-turn-in/right-turn-out only driveway and would be located approximately 410 feet south of Bison Avenue.

<u>Temporary Impacts</u>. Mitigated construction emissions from project implementation would not exceed established South Coast Air Quality Management District (SCAQMD) thresholds.

<u>Long-Term Impacts</u>. The analysis has demonstrated that project implementation would result in less than significant long-term regional and localized air quality impacts. Carbon monoxide hot-spots impacts would also be less than significant. The proposed project would result in less than significant impacts for all long-term operational emissions.

<u>Cumulative Impacts</u>. The proposed project would not result in long-term air quality impacts, as emissions would not exceed the SCAQMD adopted operational thresholds. Additionally, adherence to SCAQMD rules and regulations would alleviate potential impacts related to cumulative conditions on a project-by-project basis. The project would not result in significant operational emissions of criteria pollutants.

1.0 INTRODUCTION

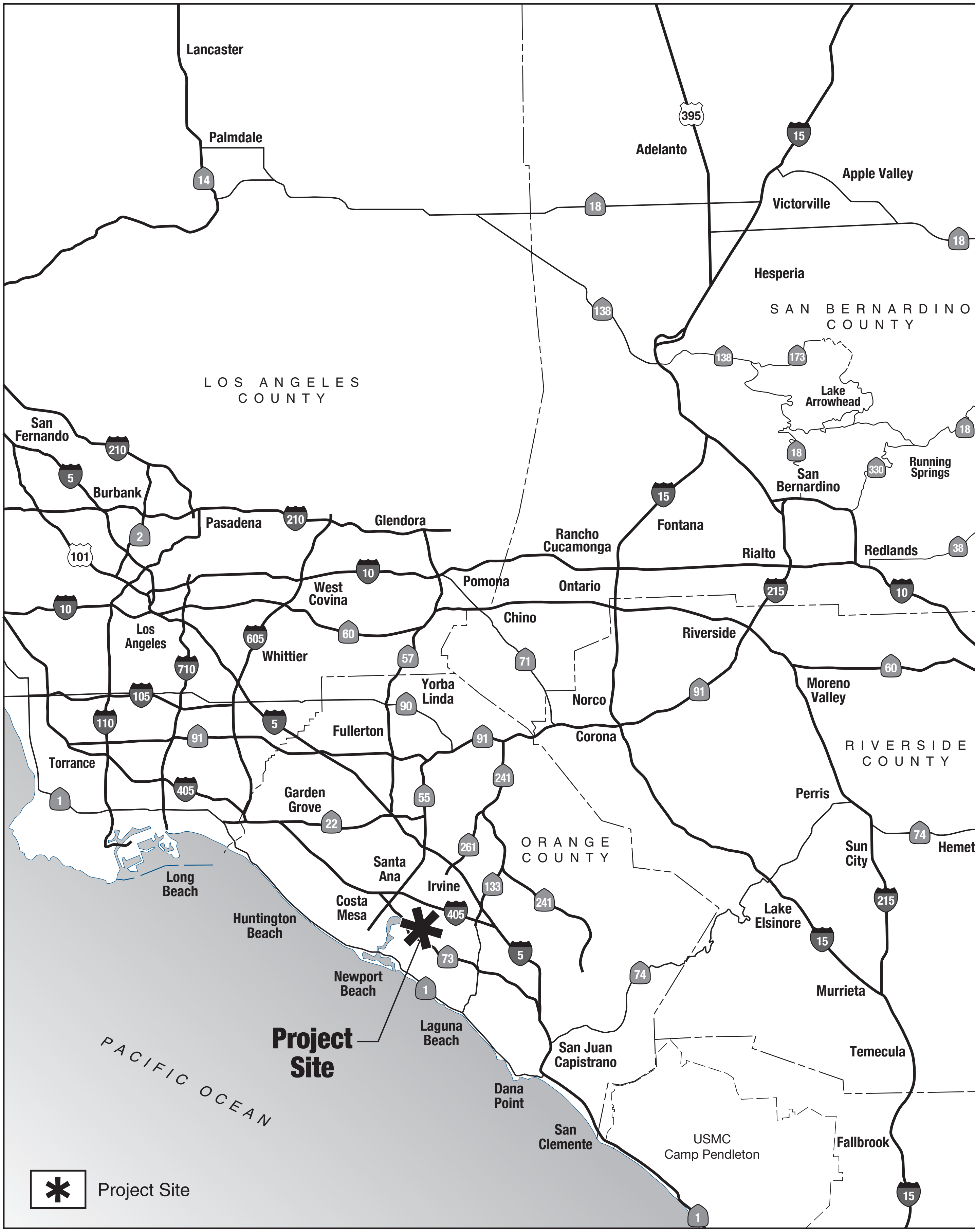
The purpose of this Air Quality Assessment is to evaluate potential short- and long-term air quality impacts resulting from implementation of the proposed Bison Parking Lot Project ("project" or "proposed project") on the University of California, Irvine (UCI) campus.

1.1 PROJECT LOCATION

The project site is located 2.5 miles south of Interstate 405 (I-405), and 0.3 miles east of State Route 73 (SR-73); refer to Exhibit 1, *Regional Vicinity*. Locally, the project is located in the area generally bounded by Bison Avenue, California Avenue, and Health Sciences Road, on the UCI campus; refer to Exhibit 2, *Site Vicinity*.

1.2 PROJECT DESCRIPTION

The proposed project would construct an approximately 330,000-square-foot surface parking lot to accommodate up to 1,000 spaces on a 7.56-acre vacant site bordered by Bison Avenue, Health Sciences Road, and California Avenue. The project scope would include vegetation clearing, grading, asphalt paving, construction of new sidewalks and road access, installation of lighting to allow 24-hour use and infrastructure for Electric Vehicle (EV) charging, landscaping, and irrigation. The lot would be constructed to allow for the future installation of an information booth and security access gate. Vehicular access to the site would be provided via two driveways on Health Sciences Road. The first driveway would be considered a full-access driveway and would be located approximately 450 feet north of California Avenue, opposite of an existing driveway that serves a gated area. The second driveway would be categorized as a right-turn-in/right-turn-out only driveway and would be located approximately 410 feet south of Bison Avenue; refer to Exhibit 3, *Conceptual Site Plan*.



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UCI BISON PARKING LOT PROJECT
AIR QUALITY ASSESSMENT

Regional Vicinity

Exhibit 1

Source: Aerial - Google Earth Pro, April 2017

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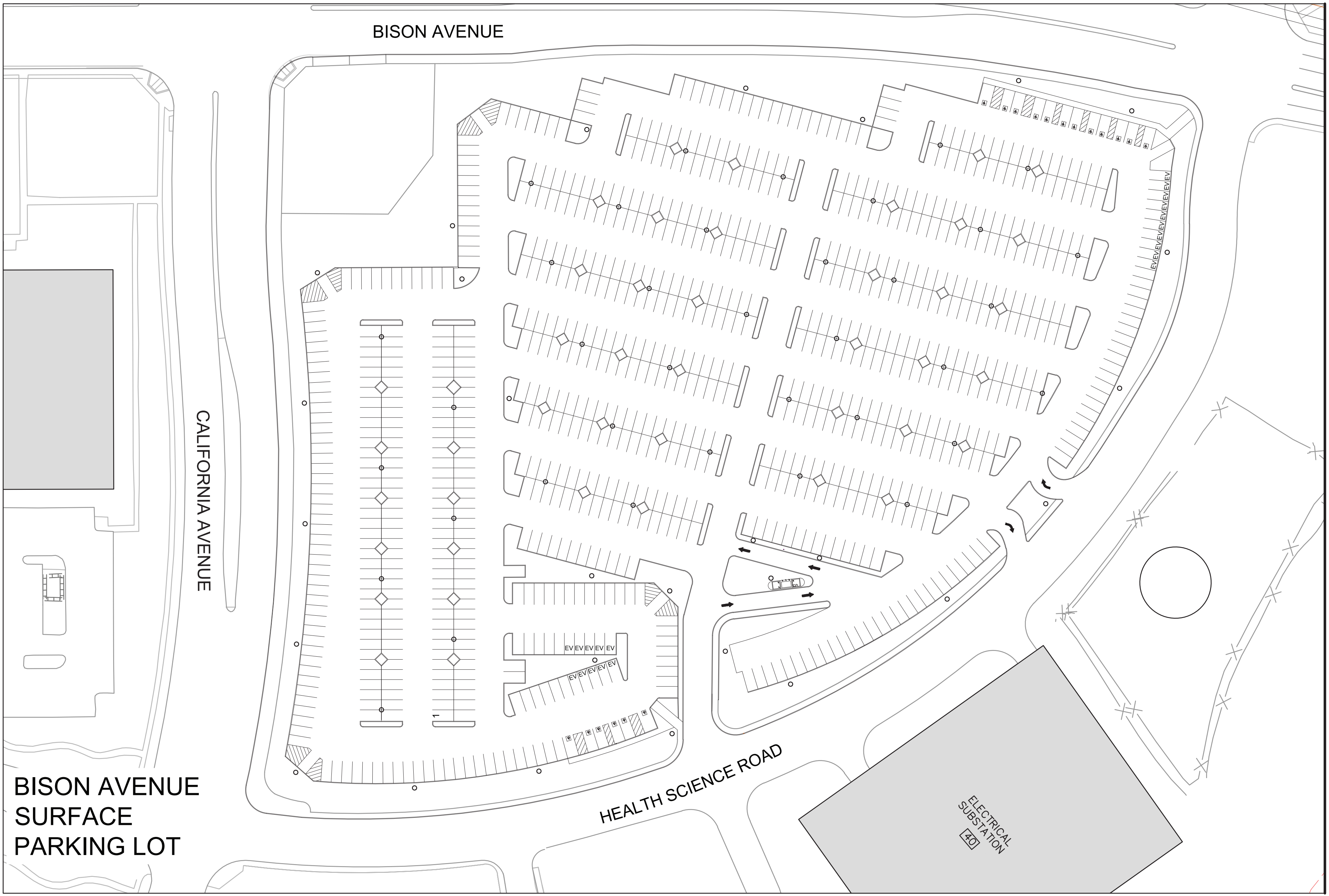
not to scale

04/27/17 JN 159188 mas

UCI BISON PARKING LOT PROJECT • AIR QUALITY ASSESSMENT

Site Vicinity

Exhibit 2



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UCI BISON PARKING LOT PROJECT • AIR QUALITY ASSESSMENT

Conceptual Site Plan

Exhibit 3

2.0 ENVIRONMENTAL SETTING

The California Air Resources Board (CARB) divides the State into 15 air basins that share similar meteorological and topographical features. The project site lies within the northwestern portion of the South Coast Air Basin (Basin). The Basin is a 6,600-square mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The Basin's terrain and geographical location (i.e., a coastal plain with connecting broad valleys and low hills) determine its distinctive climate.

The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. The climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of pollutants throughout the Basin.

CLIMATE

The average annual temperature varies little throughout the Basin, averaging 75 degrees Fahrenheit (°F). However, with a less-pronounced oceanic influence, the eastern inland portions of the Basin show greater variability in annual minimum and maximum temperatures. All portions of the Basin have had recorded temperatures over 100°F in recent years.

Although the Basin has a semi-arid climate, the air near the surface is moist due to the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the Basin by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent, and low stratus clouds, occasionally referred to as "high fog," are a characteristic climate feature. Annual average relative humidity is 70 percent at the coast and 57 percent in the eastern part of the Basin. Precipitation in the Basin is typically nine to 14 inches annually and is rarely in the form of snow or hail due to typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the Basin.

The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above sea level, the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet, the terrain prevents the pollutants from entering the upper atmosphere, resulting in a settlement in the foothill communities. Below 1,200 feet, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise than during the day. Mixing heights for inversions are lower in the summer and more persistent, being partly responsible for the high levels of ozone (O_3) observed during summer months in the Basin. Smog in southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods of time, allowing them to form secondary pollutants by reacting with sunlight. The Basin has a limited ability to disperse these pollutants due to typically low wind speeds.

The area in which the project is located offers clear skies and sunshine, yet is still susceptible to air inversions. These inversions trap a layer of stagnant air near the ground, where it is then further loaded with pollutants. These inversions cause haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces, and other sources.

Irvine experiences average high temperatures of up to 83 degrees (˚) Fahrenheit (F) during the month of August, and average low temperatures of 47 ˚F during the month of December. The City experiences approximately 14.42 inches of precipitation per year, with the most precipitation occurring in the month of February.[1]

[1] U.S. Climate Data, *Climate Irvine - California*, http://www.usclimatedata.com/climate/irvine/california/united-states/usca2494, accessed on April 18, 2017.

3.0 STATE AND FEDERAL AMBIENT AIR QUALITY STANDARDS

3.1 AMBIENT AIR QUALITY STANDARDS

CARB and the U.S. Environmental Protection Agency (EPA) establish ambient air quality standards for major pollutants at thresholds intended to protect public health. The standards for some pollutants are based on other values such as protection of crops or avoidance of nuisance conditions. Table 1, *State and National Ambient Air Quality Standards and Attainment Status*, summarizes the State California Ambient Air Quality Standards (CAAQS) and the Federal National Ambient Air Quality Standards (NAAQS).

CARB designates all areas within the State as either attainment (having air quality better than the CAAQS) or nonattainment (having a pollution concentration that exceeds the CAAQS more than once in three years). Likewise, the EPA designates all areas of the U.S. as either being in attainment of the NAAQS or nonattainment if pollution concentrations exceed the NAAQS. Because attainment/nonattainment is pollutant-specific, an area may be classified as nonattainment for one pollutant and attainment for another. Similarly, because the State and national standards differ, an area could be classified as attainment for the Federal standard of a pollutant while it may be nonattainment for the State standard of the same pollutant. Some areas are unclassified, which means no monitoring data are available. Unclassified areas are considered to be in attainment. The attainment status of SCAQMD for CAAQS and NAAQS for the area where the proposed project is located is shown in Table 1 and is discussed in more detail below under "Ambient Air Monitoring."

3.2 AMBIENT AIR MONITORING

CARB monitors ambient air quality at approximately 250 air monitoring stations across the state. Air quality monitoring stations usually measure pollutant concentrations ten feet aboveground level; therefore, air quality is often referred to in terms of ground-level concentrations. The project site is located within Source Receptor Area (SRA) 20, Central Orange County Coastal. The closest air monitoring station to the project site is the Costa Mesa – Mesa Verde Drive Monitoring Station. Local air quality data from 2013 to 2015 is provided in Table 2, *Summary of Air Quality Data*. This table lists the monitored maximum concentrations and number of exceedances of Federal/State air quality standards for each year.

Ozone. Ozone (O_3) occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. The troposphere extends approximately 10 miles above ground level, where it meets the second layer, the stratosphere. The stratospheric (the "good" ozone) layer extends upward from about ten to 30 miles and protects life on earth from the sun's harmful ultraviolet rays (UV-B). "Bad" ozone is a photochemical pollutant, and needs volatile organic compounds (VOCs), Nitrogen Oxides (NO_X) and sunlight to form; therefore, VOCs and NO_X are ozone precursors. VOCs and NO_X are emitted from various sources throughout the

Table 1
State and National Ambient Air Quality Standards and Attainment Status

Pollutant	Averaging Time	California[1]		Federal[2]	
		Standard[3]	Attainment Status	Standards[3, 4]	Attainment Status
Ozone (O_3)	1 Hour	0.09 ppm (180 $\mu g/m^3$)	**Nonattainment**	N/A[5]	N/A[5]
	8 Hours	0.070 ppm (137 $\mu g/m^3$)	**Nonattainment**	0.070 ppm (137 $\mu g/m^3$)	**Extreme Nonattainment**
Particulate Matter (PM_{10})	24 Hours	50 $\mu g/m^3$	**Nonattainment**	150 $\mu g/m^3$	Serious/Maintenance
	Annual Arithmetic Mean	20 $\mu g/m^3$	**Nonattainment**	N/A[6]	N/A[6]
Fine Particulate Matter ($PM_{2.5}$)[7]	24 Hours	No Separate State Standard		35 $\mu g/m^3$	**Serious Nonattainment**
	Annual Arithmetic Mean	12 $\mu g/m^3$	**Nonattainment**	12 $\mu g/m^3$	**Moderate Nonattainment**
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Attainment	35 ppm (40 mg/m^3)	Serious/Maintenance
	8 Hours	9.0 ppm (10 mg/m^3)	Attainment	9 ppm (10 mg/m^3)	Serious/Maintenance
Nitrogen Dioxide (NO_2)[8]	1 Hour	0.18 ppm (339 $\mu g/m^3$)	Unclassified/Attainment	0.100 ppm (188 $\mu g/m^3$)	Unclassified/Attainment
	Annual Arithmetic Mean	0.030 ppm (57 $\mu g/m^3$)	Attainment	0.053 ppm (100 $\mu g/m^3$)	Attainment/Maintenance
Lead (Pb)[9, 10]	30 days average	1.5 $\mu g/m^3$	Attainment	N/A	N/A
	Calendar Quarter	N/A	N/A	1.5 $\mu g/m^3$	Unclassified/Attainment
	Rolling 3-Month Average	N/A	N/A	0.15 $\mu g/m^3$	Unclassified/Attainment
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 $\mu g/m^3$)	Attainment	75 ppb (196 $\mu g/m^3$)	Designation Pending (Expect Unclassified/Attainment)
	24 Hours	0.04 ppm (105 $\mu g/m^3$)	Attainment	0.14 ppm (for certain areas)[12]	Unclassified/Attainment
	Annual Arithmetic Mean	N/A	N/A	0.030 ppm (for certain areas)	Unclassified/Attainment
Visibility-Reducing Particles[12]	8 Hours (10 a.m. to 6 p.m., PST)	Extinction coefficient = 0.23 km@<70% RH	Unclassified	**No Federal Standards**	
Sulfates	24 Hour	25 $\mu g/m^3$	Attainment		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 $\mu g/m^3$)	Attainment		
Vinyl Chloride[9, 10]	24 Hour	0.01 ppm (26 $\mu g/m^3$)	Attainment		

$\mu g/m^3$ = micrograms per cubic meter; ppm = parts per million; ppb = parts per billion; km = kilometer(s); RH = relative humidity; PST = Pacific Standard Time; N/A = Not Applicable

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, suspended particulate matter-PM_{10} and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations. In 1990, CARB identified vinyl chloride as a toxic air contaminant, but determined that there was not sufficient available scientific evidence to support the identification of a threshold exposure level. This action allows the implementation of health-protective control measures at levels below the 0.010 ppm ambient concentration specified in the 1978 standard.
2. National standards (other than ozone, particulate matter, 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. The EPA also may designate an area as attainment/unclassifiable, if: (1) it has monitored air quality data that show that the area has not violated the ozone standard over a three-year period; or (2) there is not enough information to determine the air quality in the area. 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 mg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
3. 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 mm of mercury. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); 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. The Federal 1-hour ozone standard was revoked on June 15, 2005 in all areas except the 14 8-hour ozone nonattainment Early Action Compact (EAC) areas.
6. The EPA revoked the annual PM_{10} standard in 2006 (effective December 16, 2006).
7. On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM_{10} standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
8. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of ppb. California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
9. CARB 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.
10. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average.
11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
12. In 1989, CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: California Air Resources Board, March 2017, and U.S. Environmental Protection Agency, March 2017.

Table 2
Summary of Air Quality Data

Pollutant	California Standard	Federal Primary Standard	Year	Maximum Concentration[3]	Days (Samples) State/Federal Std. Exceeded
Ozone (O_3)[1] (1-hour)	0.09 ppm for 1 hour	NA[6]	2013 2014 2015	0.095 ppm 0.096 0.099	1/0 1/0 1/0
Ozone (O_3)[1] (8-hour)	0.070 ppm for 8 hours	0.070 ppm for 8 hours	2013 2014 2015	0.084 ppm 0.080 0.080	2/1 6/4 2/1
Carbon Monoxide (CO)[1] (1-hour)	20 ppm for 1 hour	35 ppm for 1 hour	2013 2014 2015	2.44 ppm 2.68 2.98	0/0 0/0 0/0
Carbon Monoxide (CO)[1] (8-hour)	9.0 ppm for 8 hours	9.0 ppm for 8 hours	2013 2014 2015	NA NA NA	NA/NA NA/NA NA/NA
Nitrogen Dioxide (NO_2)[1]	0.18 ppm for 1 hour	0.100 ppm for 1 hour	2013 2014 2015	0.076 ppm 0.060 0.052	0/0 0/0 0/0
Fine Particulate Matter ($PM_{2.5}$)[2, 4]	No Separate Standard	35 $\mu g/m^3$ for 24 hours	2013 2014 2015	28.0 $\mu g/m^3$ 25.5 31.5	NA/[6] NA/[6] NA/[6]
Particulate Matter (PM_{10})[2, 4, 5]	50 $\mu g/m^3$ for 24 hours	150 $\mu g/m^3$ for 24 hours	2013 2014 2015	51.0 $\mu g/m^3$ 541.0 49.0	0/0 0/0 0/0

Source: Aerometric Data Analysis and Measurement System (ADAM), summaries from 2013 to 2015, https://www.arb.ca.gov/adam.

ppm = parts per million; PM_{10} = particulate matter 10 microns in diameter or less; NM = not measured; $\mu g/m^3$ = micrograms per cubic meter; $PM_{2.5}$ = particulate matter 2.5 microns in diameter or less; NA = not applicable; * = data not available.

Notes:
1. Data collected from the Costa Mesa – Mesa Verde Drive Monitoring Station located at 2850 Mesa Verde Drive, Costa Mesa, California 92626.
2. Data collected from the Mission Viejo – 2601 Via Pera Monitoring Station located at 26081 Via Pera, Mission Viejo, CA 92691.
3. Maximum concentration is measured over the same period as the California Standards.
4. PM_{10} exceedances are based on State thresholds established prior to amendments adopted on June 20, 2002.
5. PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.
6. The Federal standard was revoked in June 2005.

City. Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and several hours in a stable atmosphere with strong sunlight.

Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. Ozone also damages natural ecosystems (such as forests and foothill plant communities) and damages agricultural crops and some man-made materials (such as rubber, paint, and plastics). Societal costs from ozone damage include increased healthcare costs, the loss of human and animal life, accelerated replacement of industrial equipment and reduced crop yields.

Carbon Monoxide. Carbon monoxide (CO) is an odorless, colorless toxic gas that is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. At high concentrations, CO can reduce the oxygen-carrying capacity of the blood and cause headaches, dizziness, and unconsciousness.

Nitrogen Dioxide. Nitrogen oxides (NO_X) are a family of highly reactive gases that are a primary precursor to the formation of ground-level O_3, and react in the atmosphere to form acid rain. NO_2 (often used interchangeably with NO_X) is a reddish-brown gas that can cause breathing difficulties at high levels. Peak readings of NO_2 occur in areas that have a high concentration of combustion sources (e.g., motor vehicle engines, power plants, refineries, and other industrial operations).

NO_2 can irritate and damage the lungs, and lower resistance to respiratory infections such as influenza. The health effects of short-term exposure are still unclear. However, continued or frequent exposure to NO_2 concentrations that are typically much higher than those normally found in the ambient air may increase acute respiratory illnesses in children and increase the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may aggravate eyes and mucus membranes and cause pulmonary dysfunction.

Coarse Particulate Matter (PM_{10}). PM_{10} refers to suspended particulate matter, which is smaller than ten microns or ten one-millionths of a meter. PM_{10} arises from sources such as road dust, diesel soot, combustion products, construction operations, and dust storms. PM_{10} scatters light and significantly reduces visibility. In addition, these particulates penetrate the lungs and can potentially damage the respiratory tract. On June 19, 2003, CARB adopted amendments to the statewide 24-hour particulate matter standards based upon requirements set forth in the Children's Environmental Health Protection Act (SB 25).

Fine Particulate Matter ($PM_{2.5}$). Due to increased concerns over health impacts related to fine particulate matter (particulate matter 2.5 microns in diameter or less), both State and Federal $PM_{2.5}$ standards have been created. Particulate matter impacts primarily affect infants, children, the elderly, and those with pre-existing cardiopulmonary disease. In 1997, the EPA announced new $PM_{2.5}$ standards. Industry groups challenged the new standard in court and the implementation of the standard was blocked. However, upon appeal by the EPA, the U.S. Supreme Court reversed this decision and upheld the EPA's new standards.

On June 20, 2002, CARB adopted amendments for statewide annual ambient particulate matter air quality standards. These standards were revised/established due to increasing concerns by CARB that previous standards were inadequate, as almost everyone in California is exposed to levels at or above the current State standards during some parts of the year, and the statewide potential for significant health impacts associated with particulate matter exposure was determined to be large and wide-ranging.

Reactive Organic Gases and Volatile Organic Compounds. Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including reactive organic gases (ROGs) and VOCs. Both ROGs and VOCs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. The major sources of hydrocarbons are combustion engine exhaust, oil refineries, and oil-fueled power plants; other common sources are petroleum fuels, solvents, dry cleaning solutions, and paint (via evaporation).

3.3 SENSITIVE RECEPTORS

Sensitive populations are more susceptible to the effects of air pollution than is the general population. Sensitive populations (sensitive receptors) that are in proximity to localized sources of toxics and CO are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Table 3, *Sensitive Receptors*, lists the distances and locations of sensitive receptors within the project vicinity. The distances depicted in Table 3 are based on the distance from the project site to the outdoor activity area of the closest receptor.

Table 3
Sensitive Receptors

Type	Name	Distance from Project Site (feet)[1]	Direction from Project Site	Location
Residential	Residential Uses	2,172 feet	Southwest	North of Bonita Canyon Drive
		2,034 feet	East	West of Los Trancos Drive
		960 feet	Northeast	North of Bison Avenue
Schools	Gavin Herbert Eye Institute	126 feet	West	850 Health Sciences Road
	UCI School of Medicine	1,088 feet	North	North of Bison Avenue
	UCI School of Physical Sciences	2,184 feet	Northeast	South of Inner Ring Road
	Donald Bren School of Information and Computer Sciences	2,667 feet	Northeast	6210 Donald Bren Hall
Parks/Recreational Areas	Arroyo Park	2,735 feet	Southwest	1411 Bayswater (Newport Beach)
	Crawford Field	2,576 feet	North	North of Academy Way
	Founders' Court	2,673 feet	Northeast	West of Inner Ring Road
	Commencement Lawn	2,687 feet	Northeast	North of Inner Ring Road
Library	Ayala Science Library (UCI)	1,800 feet	Northeast	West of Ring Road

Note:
1. Distances are measured from the exterior project boundary only and not from individual construction areas within the interior of the project site.

Source: Google Earth, 2017.

4.0 REGULATORY SETTING

4.1 FEDERAL

Air quality is federally protected by the Clean Air Act and its amendments. Under the Federal Clean Air Act (FCAA), the EPA developed the primary and secondary NAAQS for the criteria air pollutants including ozone, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and lead. Proposed projects in or near nonattainment areas could be subject to more stringent air-permitting requirements. The Clean Air Act requires each state to prepare a State Implementation Plan (SIP) to demonstrate how it will attain the NAAQS within the federally imposed deadlines.

The EPA can withhold certain transportation funds from states that fail to comply with the planning requirements of the Clean Air Act. If a state fails to correct these planning deficiencies within two years of Federal notification, the EPA is required to develop a Federal implementation plan for the identified nonattainment area or areas. The provisions of 40 CFR Parts 51 and 93 apply in all nonattainment and maintenance areas for transportation-related criteria pollutants for which the area is designated nonattainment or has a maintenance plan. The EPA has designated enforcement of air pollution control regulations to the individual states.

4.2 STATE

In 1988, the California Clean Air Act (CCAA) was adopted and led to the establishment of CAAQS for the same major pollutants as the NAAQS and standards for visibility reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. There are currently no NAAQS for these latter pollutants. CARB is responsible for enforcing air pollution regulations in California. The CCAA requires all air pollution control districts in California to endeavor to achieve and maintain state ambient air-quality standards by the earliest practicable date and to develop plans and regulations specifying how they will meet this goal.

4.3 REGIONAL

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

The *2016 Air Quality Management Plan* (2016 AQMP), which was adopted in March 2017, proposes policies and measures to achieve federal and state standards for improved air quality in the South Coast Air Basin and those portions of the Salton Sea Air Basin (formerly named the Southeast Desert Air Basin) that are under the South Coast Air Quality Management District's (SCAQMD's) jurisdiction. The AQMP relies on a regional and multi-level partnership of governmental agencies at the federal, state, regional, and local level. These agencies (EPA, CARB, local governments, Southern California Association of Governments [SCAG], and the SCAQMD) are the primary agencies that implement the AQMP programs. The 2016 AQMP incorporates the latest scientific and technical information and planning assumptions, including the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy, updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts.

The 2016 AQMP addresses several state and federal planning requirements, incorporating new scientific information, primarily in the form of updated emissions inventories, ambient measurements, and new meteorological air quality models. The 2016 AQMP highlights the reductions and the interagency planning necessary to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under Federal Clean Air Act. The primary task of the 2016 AQMP is to bring the Basin into attainment with federal health-based standards.

4.4 LOCAL

University of California, Irvine

Environmental Health and Safety Department

UCI's Environmental Health and Safety (EH&S) Department is responsible for implementing UCI's Clean Air Program which assesses and facilitates UCI's compliance with air quality laws and regulations. In addition to the permitting programs required by California law and SCAQMD rules, UCI is required to implement a federal operating permit program, which meets federal EPA regulations adopted pursuant to Title V of the FCAA Amendments. Title V Program activities include assisting with SCAQMD Permit to Operate administration; monitoring, record keeping, and reporting activities; and developing regulatory programs and informational guidelines to ensure the campus remains in compliance with State and federal regulations.

Several different departments at UCI are involved with this program. Academic department chairs and directors are responsible for reporting new air emission sources to EH&S and maintaining records. Facilities Management and Design and Construction Services provide building and renovation plans to EH&S for review and also report new air emission sources to EH&S. Parking and Transportation Services, while not directly involved with the Clean Air Program, reduce air emissions by implementing the Alternative Transportation Program to reduce vehicular traffic and associated emissions.

5.0 POTENTIAL AIR QUALITY IMPACTS

CEQA THRESHOLDS

The environmental analysis in this section is patterned after the Initial Study Checklist recommended by the State *CEQA Guidelines*, as amended. The issues presented in the Initial Study Checklist have been utilized as thresholds of significance in this section. Accordingly, a project may create a significant environmental impact if it causes one or more of the following to occur:

- Conflict with or obstruct implementation of the applicable air quality plan (refer to Impact Statement AQ-1);
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation (refer to Impact Statement AQ-2);
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable Federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for O_3 precursors) (refer to Impact Statement AQ-3);
- Expose sensitive receptors to substantial pollutant concentrations (refer to Impact Statement AQ-4);
- Create objectionable odors affecting a substantial number of people (refer to Impact Statement AQ-5);

Based on these standards and thresholds, the effects of the proposed project have been categorized as either a "less than significant impact" or a "potentially significant impact." Mitigation measures are recommended for potentially significant impacts.

AIR QUALITY THRESHOLDS

Under CEQA, the SCAQMD is an expert commenting agency on air quality within its jurisdiction or impacting its jurisdiction. Under the FCAA, the SCAQMD has adopted Federal attainment plans for O_3 and $PM_{2.5}$. The SCAQMD reviews projects to ensure that they would not: (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation of any air quality standard; or (3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any Federal attainment plan.

The *CEQA Air Quality Handbook* also provides significance thresholds for both construction and operation of projects within the SCAQMD jurisdictional boundaries. If the SCAQMD thresholds are exceeded, a potentially significant impact could result. However, ultimately the lead agency determines the thresholds of significance for impacts. If a project proposes development in excess of the established thresholds, as outlined in Table 4, *South Coast Air Quality Management District Emissions Thresholds*, a significant air quality impact may occur and additional analysis is warranted to fully assess the significance of impacts.

Table 4
South Coast Air Quality Management District Emissions Thresholds

Phase	Pollutant (lbs/day)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Construction	75	100	550	150	150	55
Operational	55	55	550	150	150	55
Source: South Coast Air Quality Management District, CEQA Air Quality Handbook, November 1993.						

Local Carbon Monoxide Standards

The significance of localized project impacts depends on whether ambient CO levels in the vicinity of the project are above or below State and Federal CO standards, as follows:

- If the project causes an exceedance of either the State one-hour or eight-hour CO concentrations, the project would be considered to have a significant local impact.

- If ambient levels already exceed a State or Federal standard, then project emissions would be considered significant if they increase one-hour CO concentrations by 1.0 ppm or more, or eight-hour CO concentrations by 0.45 ppm or more.

Localized Significance Thresholds

Localized Significance Thresholds (LSTs) were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (dated July 2008) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with project-specific level proposed projects. The SCAQMD provides the LST lookup tables for one-, two-, and five-acre projects emitting CO, NO_X, or PM_{10}. The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways. The SCAQMD recommends that any project over five acres should perform air quality dispersion modeling to assess impacts to nearby sensitive receptors.

Cumulative Emissions Thresholds

The SCAQMD's 2016 AQMP was prepared to accommodate growth, meet State and Federal air quality standards, and minimize the fiscal impact that pollution control measures have on the local economy. According to the SCAQMD *CEQA Air Quality Handbook*, project-related emissions that fall below the established construction and operational thresholds should be considered less than significant unless there is pertinent information to the contrary. If a project exceeds these emission thresholds, the SCAQMD *CEQA Air Quality Handbook* states that the significance of a project's contribution to cumulative impacts should be determined based on whether the rate of growth in average daily trips exceeds the rate of growth in population.

AQ-1 CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF THE APPLICABLE AIR QUALITY PLAN?

Level of Significance Before Mitigation: *Potentially Significant Impact.*

On March 3, 2017, the SCAQMD Governing Board approved the 2016 AQMP, which outlines its strategies for meeting the NAAQS for $PM_{2.5}$ and ozone. According to the SCAQMD CEQA Air Quality Handbook, in order to determine consistency with the AQMP, two main criteria must be addressed.

Criterion 1:

With respect to the first criterion, SCAQMD methodologies require that an air quality analysis for a project include forecasts of project emissions in relation to contributing to air quality violations and delay of attainment.

a) *Would the project result in an increase in the frequency or severity of existing air quality violations?*

   Since the consistency criteria identified under the first criterion pertain to pollutant concentrations, rather than to total regional emissions, an analysis of a project's pollutant emissions relative to localized pollutant concentrations is used as the basis for evaluating project consistency. As discussed in Impact Statement AQ-4, below, localized concentrations of CO, NO_X, PM_{10}, and $PM_{2.5}$ would be less than significant during project operations. Therefore, the proposed project would not result in an increase in the frequency or severity of existing air quality violations. Because reactive organic gases (ROGs) are not a criteria pollutant, there is no ambient standard or localized threshold for ROGs. Due to the role ROG plays in ozone formation, it is classified as a precursor pollutant and only a regional emissions threshold has been established.

b) *Would the project cause or contribute to new air quality violations?*

   As discussed in Impact Statement AQ-2, operations of the proposed project would result in emissions that would be below the SCAQMD operational thresholds. Therefore, the proposed project would not have the potential to cause or affect a violation of the ambient air quality standards.

c) *Would the project delay timely attainment of air quality standards or the interim emissions reductions specified in the AQMP?*

The proposed project would result in less than significant impacts with regard to localized concentrations during project operations. As such, the proposed project would not delay the timely attainment of air quality standards or 2016 AQMP emissions reductions.

Criterion 2:

With respect to the second criterion for determining consistency with SCAQMD and SCAG air quality policies, it is important to recognize that air quality planning within the Basin focuses on attainment of ambient air quality standards at the earliest feasible date. Projections for achieving air quality goals are based on assumptions regarding population, housing, and growth trends. Thus, the SCAQMD's second criterion for determining project consistency focuses on whether or not the proposed project exceeds the assumptions utilized in preparing the forecasts presented in the 2016 AQMP. Determining whether or not a project exceeds the assumptions reflected in the 2016 AQMP involves the evaluation of the three criteria outlined below. The following discussion provides an analysis of each of these criteria.

a) *Would the project be consistent with the population, housing, and employment growth projections utilized in the preparation of the AQMP?*

In the case of the 2016 AQMP, several sources of data form the basis for the projections of air pollutant emissions including: the *City of Irvine General Plan* (General Plan), UCI's *2007 Long Range Development Plan* (LRDP), SCAG's *Growth Management* Chapter of the *Regional Comprehensive Plan* (RCP), and SCAG's *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS). The RTP/SCS also provides socioeconomic forecast projections of regional population growth. The General Plan Land Use Map designates the project site as "Educational Facilities", and the LRDP designates the site as "Income-Producing Inclusion Area". According to the LRDP, the Income-Producing Inclusion Area designation permits office space, research and development uses, commercial and retail space, conference facilities, research facilities, clinical uses, multi-purpose facilities such as arenas, and other commercial or non-profit facilities. The project proposes to construct an estimated 1,000 space parking lot serving a variety of UCI facilities, and therefore complies with the site's intended use. Additionally, the project would be consistent with the City's General Plan and UCI's LRDP and assumed emissions for the project site, since no change in the site's land use designation is proposed. Thus, the project is generally consistent with the types, intensity, and patterns of land use envisioned for the site vicinity in the RCP. The population, housing, and employment forecasts, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the cities; these are used by SCAG in all phases of implementation and review. Additionally, as SCAQMD incorporated these same projections into the 2016 AQMP, it can be concluded that the project would be consistent with the projections. As a result, the project would not exceed growth assumptions within the City's General Plan. Therefore, the project would be consistent with the 2016 AQMP and a less than significant impact would occur.

b) *Would the project implement all feasible air quality mitigation measures?*

Compliance with all feasible emission reduction measures identified by the SCAQMD would be required as identified in Impact Statement AQ-2 and AQ-3. As such, the proposed project would meet this AQMP consistency criterion.

c) *Would the project be consistent with the land use planning strategies set forth in the AQMP?*

The project is consistent with the LRDP land use designations for the site, and would serve to implement various LRDP policies. Compliance with emission reduction measures identified by the SCAQMD would be required as identified in Impact Statement AQ-2 and Impact Statement AQ-3. As such, the proposed project meets this AQMP consistency criterion.

In conclusion, the determination of 2016 AQMP consistency is primarily concerned with the long-term influence of a project on air quality in the Basin. The proposed project would not result in a long-term impact on the region's ability to meet State and Federal air quality standards. Also, the proposed project would be consistent with the goals and policies of the AQMP for control of fugitive dust. As discussed above, the proposed project's long-term influence would also be consistent with the SCAQMD and SCAG's goals and policies and is, therefore, considered consistent with the 2016 AQMP.

Mitigation Measures: Refer to Mitigation Measures AQ-1, below.

Level of Significance After Mitigation. *Less Than Significant Impact.*

AQ-2 VIOLATE ANY AIR QUALITY STANDARDS OR CONTRIBUTE SUBSTANTIALLY TO AN EXISTING OR PROJECTED AIR QUALITY VIOLATION?

Level of Significance Before Mitigation: *Potentially Significant Impact.*

SHORT-TERM CONSTRUCTION

Short-term air quality impacts are predicted to occur during grading and construction operations associated with implementation of the proposed project. Temporary air emissions would result from the following activities:

- Particulate (fugitive dust) emissions from grading; and
- Exhaust emissions from the construction equipment and the motor vehicles of the construction crew.

Construction would involve activities associated with demolition of the vegetated area, grading, and paving. Site grading would require approximately 26,500 cubic yards of soil export off-site and 26,500 cubic yards of fill. Project construction equipment would include excavators, loaders, dump trucks, and dozers during demolition; graders, rollers, loaders, and dozers during grading; pavers, rollers, loaders, dump trucks, and a crawler crane during paving. Emissions for each construction phase have been quantified based upon the phase durations and equipment types. The analysis of daily construction emissions has been prepared utilizing the California Emissions Estimator Model (CalEEMod) version 2016.3.1. Refer to Appendix A, *Air Quality Emissions Data*, for the CalEEMod outputs and results. Table 5, *Short-Term (Construction) Emissions*, presents the anticipated daily short-term construction emissions.

Fugitive Dust Emissions

Construction activities are a source of fugitive dust (PM_{10} and $PM_{2.5}$) emissions that may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the project area. Fugitive dust emissions are associated with land clearing, ground excavation, cut-and-fill, and truck travel on unpaved roadways (including demolition as well as construction activities). Fugitive dust emissions vary substantially from day to day, depending on the level of activity, specific operations, and weather conditions. Fugitive dust from grading and construction is expected to be short-term and would cease upon project completion. Additionally, most of this material is inert silicates, rather than the complex organic particulates released from combustion sources, which are more harmful to health.

Table 5
Short-Term (Construction) Emissions

Emissions Source	Pollutant (pounds/day) [1, 2]					
	ROG[3]	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2017						
Unmitigated Emissions	8.23	84.65	42.31	0.08	14.69	8.57
Mitigated Emissions	8.28	84.65	42.31	0.08	7.09	4.50
SCAQMD Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Is Threshold Exceeded After Mitigation?	***No***	***No***	***No***	***No***	***No***	***No***
2018						
Unmitigated Emissions	3.68	45.33	18.54	0.04	14.50	8.40
Mitigated Emissions	3.68	45.33	18.54	0.04	6.90	4.32
SCAQMD Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Is Threshold Exceeded After Mitigation?	***No***	***No***	***No***	***No***	***No***	***No***

Notes:
1. Emissions were calculated using CalEEMod, as recommended by the SCAQMD.
2. The reduction/credits for construction emission mitigations are based on mitigation included in CalEEMod and as typically required by the SCAQMD. The mitigation includes the following: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces three times daily; cover stock piles with tarps; water all haul roads twice daily; and limit speeds on unpaved roads to 15 miles per hour.
3. Both ROGs and VOCs are subsets of organic gases that are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. Although they represent slightly different subsets of organic gases, they are used interchangeably for the purposes of this analysis.

Refer to Appendix A, *Air Quality Emissions Data*, for assumptions used in this analysis.

Dust (larger than 10 microns) generated by such activities usually becomes more of a local nuisance than a serious health problem. Of particular health concern is the amount of PM_{10} (particulate matter smaller than 10 microns) generated as a part of fugitive dust emissions. PM_{10} poses a serious health hazard alone or in combination with other pollutants. Fine Particulate Matter ($PM_{2.5}$) is mostly produced by mechanical processes. These include automobile tire wear, industrial processes such as cutting and grinding, and re-suspension of particles from the ground or road surfaces by wind and human activities such as construction or agriculture. $PM_{2.5}$ is mostly derived from combustion sources, such as automobiles, trucks, and other vehicle exhaust, as well as from stationary sources. These particles are either directly emitted or are formed in the atmosphere from the combustion of gases such as NO_X and SO_X combining with ammonia. $PM_{2.5}$ components from material in the earth's crust, such as dust, are also present, with the amount varying in different locations.

Mitigation Measure AQ-1 would require the project contractor to implement construction emissions Best Management Practices (BMPs) during construction, including, but not limited to, dust control techniques (i.e., daily watering), a traffic management plan, and adherence to SCAQMD Rules 402 and 403 (which require watering of inactive and perimeter areas, track out requirements, etc.), to reduce PM_{10} and $PM_{2.5}$ concentrations. It is noted that the BMPs required in Mitigation Measure AQ-1 are applicable measures from LRDP EIR Mitigation Measure Air-2B. These are standard dust control measures that the SCAQMD requires for all projects. As indicated in Table 5, total PM_{10} and $PM_{2.5}$ emissions would be below the SCAQMD threshold with the implementation of Mitigation Measure AQ-1. Therefore, particulate matter impacts during construction would be less than significant.

ROG Emissions[2]

In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O_3 precursors. In accordance with the methodology prescribed by the SCAQMD, the ROG emissions associated with paving have been quantified with CalEEMod. As shown in Table 5, project construction would not result in an exceedance of ROG emissions during any years of construction. Therefore, impacts would be less than significant in this regard.

Construction Equipment and Worker Vehicle Exhaust

Exhaust emissions from construction activities include emissions associated with the transport of machinery and supplies to and from the project site, emissions produced on-site as the equipment is used, and emissions from trucks transporting materials to and from the site. Standard SCAQMD regulations, such as maintaining all construction equipment in proper tune, shutting down equipment when not in use for extended periods of time, and implementing SCAQMD

[2] ROGs and VOCs are subsets of organic gases that are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. Although they represent slightly different subsets of organic gases, they are used interchangeably for the purposes of this analysis.

Rule 403 would be adhered to. As noted in Table 5, construction equipment exhaust would not exceed SCAQMD thresholds. Therefore, impacts are less than significant in this regard.

Naturally Occurring Asbestos

Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by State, Federal, and international agencies and was identified as a toxic air contaminant by the California Air Resources Board in 1986.

Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All of these activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed. According to the Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report* (August 2000), serpentinite and ultramafic rocks are not known to occur within the project area. Thus, there would be no impact in this regard.

Construction Odors

Potential odors could arise from the diesel construction equipment used on-site and asphalt off-gassing. Odors generated from the referenced sources are common in the man-made environment and are not known to be substantially offensive to adjacent receptors. Additionally, odors generated during construction activities would be temporary and would decrease rapidly. Therefore, construction odors are not considered to be a significant impact.

Total Daily Construction Emissions

In accordance with the SCAQMD Guidelines, CalEEMod was utilized to model construction emissions for ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. Construction would occur over a 5 month period with the greatest emissions being generated during the initial stages of construction.

CalEEMod allows the user to input mitigation measures such as watering the construction area to limit fugitive dust. Mitigation measures that were input into CalEEMod allow for certain reduction credits and result in a decrease of pollutant emissions. Reduction credits are based upon studies developed by CARB, SCAQMD, and other air quality management districts throughout California, and were programmed within CalEEMod. As indicated in Table 5, CalEEMod calculates the reduction associated with recommended mitigation measures. As depicted in Table 5, construction emissions would be less than significant with implementation of Mitigation Measure AQ-1. Thus, construction related air emissions would be less than significant.

LONG-TERM OPERATIONAL EMISSIONS

Mobile Source Emissions

Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, ROG, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ are all pollutants of regional concern (NO_X and ROG react with sunlight to form O_3 [photochemical smog], and wind currents readily transport SO_X, PM_{10}, and $PM_{2.5}$). However, CO tends to be a localized pollutant, dispersing rapidly at the source.

Project-generated vehicle emissions have been estimated using CalEEMod. Trip generation rates associated with the project were based on traffic data within the *Bison Parking Lot Traffic Study* (Traffic Study) for the proposed project, prepared by Stantec Consulting Services (dated April 2017). The proposed project would result in approximately 5,503 new daily trips. Table 6, *Long-Term Air Emissions*, presents the anticipated mobile source emissions. As shown in Table 6, mitigated emissions generated by vehicle traffic associated with the proposed project would not exceed established SCAQMD regional thresholds.

Table 6
Long-Term Air Emissions

Source	Estimated Emissions (pounds/day) [1]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area Sources	0.15	0.00	0.10	0.00	0.00	0.00
Energy Sources	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Sources	7.08	14.06	32.90	0.02	0.04	0.04
Total Emissions	***7.23***	***14.06***	***33.00***	***0.02***	***0.04***	***0.04***
SCAQMD Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Is Threshold Exceeded? (Significant Impact)	**No**	**No**	**No**	**No**	**No**	**No**

Notes:
1. Based on CalEEMod modeling results, mitigated seasonal emissions for area and mobile emissions have been modeled.

Source: Refer to Appendix A, *Air Quality Emissions Data*, for assumptions used in this analysis.

Area Source Emissions

Area source emissions would be generated due to an increased demand for consumer products, architectural coating, and landscaping. The proposed project is a parking lot and would not involve the use of consumer products or hearths. As shown in Table 6, mitigated area source emissions from the proposed project would not exceed SCAQMD thresholds for ROG, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$.

Energy Source Emissions

Energy source emissions would be generated as a result of electricity and natural gas (non-hearth) usage associated with the proposed project. The proposed parking lot would not require the use of natural gas. The primary use of electricity would be from the parking lot lighting. CalEEMod calculates the energy use from lighting in open parking lots. As shown in Table 6, energy source emissions from the proposed project would be nominal and would not exceed SCAQMD thresholds for ROG, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$.

Conclusion

As indicated in Table 6, mitigated operational emissions from the proposed project would not exceed SCAQMD thresholds. If stationary sources, such as backup generators, are installed on-site, they would be required to obtain the applicable permits from SCAQMD for operation of such equipment. The SCAQMD is responsible for issuing permits for the operation of stationary sources in order to reduce air pollution, and to attain and maintain the national and California ambient air quality standards in the Basin. Backup generators would be used only in emergency situations, and would not contribute a substantial amount of emissions capable of exceeding SCAQMD thresholds. Thus, operational air quality impacts would be less than significant.

Mitigation Measures:

AQ-1 Prior to initiating 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 BMPs:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

xviii. The construction contractor shall 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.

(Mitigation Measure AQ-1 correlates with Mitigation Measure Air-2B in the 2007 LRDP EIR).

Level of Significance After Mitigation. *Less than Significant Impact.*

AQ-3 RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE OF ANY CRITERIA POLLUTANT FOR WHICH THE REGION IS NONATTAINMENT FOR FEDERAL OR STATE STANDARDS?

Level of Significance Before Mitigation: *Potentially Significant Impact.*

With respect to the proposed project's construction-related air quality emissions and cumulative Basin-wide conditions, the SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the 2016 AQMP pursuant to Federal Clean Air Act mandates. As such, the proposed project would comply with SCAQMD Rule 403 requirements, and implement all feasible mitigation measures (Mitigation Measure AQ-1). Rule 403 requires that fugitive dust be controlled with the best available control measures in order to reduce dust so that it does not remain visible in the atmosphere beyond the property line of the proposed project. In addition, the proposed project would comply with adopted 2016 AQMP emissions control measures. Per SCAQMD rules and mandates, as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements (i.e., Rule 403 compliance, the implementation of all feasible mitigation measures, and compliance with adopted AQMP emissions control measures) would also be imposed on construction projects throughout the Basin, which would include related projects.

As discussed previously, the proposed project would not result in long-term air quality impacts, as emissions would not exceed the SCAQMD adopted operational thresholds. Additionally, adherence to SCAQMD rules and regulations would alleviate potential impacts related to cumulative conditions on a project-by-project basis. Emission reduction technology, strategies, and plans are constantly being developed. As a result, the proposed project would not contribute a cumulatively considerable net increase of any nonattainment criteria pollutant. Therefore, cumulative operational impacts associated with implementation of the proposed project would be less than significant.

Mitigation Measures: Refer to Mitigation Measure AQ-1.

Level of Significance After Mitigation. *Less Than Significant Impact.*

AQ-4 EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS?

Level of Significance Before Mitigation: *Potentially Significant Impact.*

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

The closest on-campus sensitive receptors near the project site include residences to the northeast and the Gavin Herbert Eye Institute to the northwest of the project site. In order to identify impacts to sensitive receptors, the SCAQMD recommends addressing localized significance thresholds (LSTs) for construction and operations impacts (area sources only). The CO hotspot analysis following the LST analysis addresses localized mobile source impacts.

LOCALIZED SIGNIFICANCE THRESHOLDS (LST)

LSTs were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (dated June 2003 [revised 2008]) for guidance. The LST methodology assists lead agencies in analyzing localized air quality impacts. The SCAQMD provides the LST screening lookup tables for one, two, and five acre projects emitting CO, NO_X, $PM_{2.5}$, or PM_{10}. The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways. The SCAQMD recommends that any project over five acres should perform air quality dispersion modeling to assess impacts to nearby sensitive receptors. The project is located within Source Receptor Area (SRA) 20, Central Orange County Coastal.

Construction

The SCAQMD guidance on applying CalEEMod to LSTs specifies the amount of acres a particular piece of equipment would likely disturb per day. According to the SCAQMD guidance on applying CalEEMod to LSTs, the project would disturb at most three acres of land per day based on the low amount of construction equipment for the project site size (7.56 acres). However, the AQMD provides thresholds for one, two, and five acre sites. Therefore, the LST thresholds for two acres was conservatively utilized for the construction LST analysis. The closest sensitive receptors to the project site are school uses (Gavin Herbert Eye Institute) located approximately 126 feet (38 meters) to the northwest of the project site. This sensitive land use may be potentially affected by air pollutant emissions generated during on-site construction activities. LST thresholds are provided for distances to sensitive receptors of 25, 50, 100, 200, and 500 meters. As the nearest sensitive use is located approximately 126 feet (38 meters) to the northwest of the project site, the LST values for 38 meters were interpolated between the 25 and 50 meter thresholds. Table 7, *Localized Significance of Construction Emissions*, shows the localized unmitigated and mitigated construction-related emissions. It is noted that the localized emissions presented in Table 7 are less than those in Table 5 because localized emissions include only on-site emissions (i.e., from construction equipment and fugitive dust), and do not include off-site emissions (i.e., from hauling activities). As seen in Table 7, mitigated on-site emissions would not exceed the LSTs for SRA 20.

Table 7
Localized Significance of Construction Emissions

Source	Pollutant (pounds/day)[1]			
	NO_X	CO	PM_{10}	$PM_{2.5}$
2017				
Total Unmitigated On-Site Emissions[2,3]	84.54	41.16	14.43	8.49
Total Mitigated On-Site Emissions[2,3]	84.54	41.16	6.80	4.41
Localized Significance Threshold[1]	129	1,020	6.83	4.42
Thresholds Exceeded?	***No***	***No***	***No***	***No***
2018				
Total Unmitigated On-Site Emissions[4]	37.97	16.28	14.25	8.32
Total Mitigated On-Site Emissions[4]	37.97	16.28	6.65	4.25
Localized Significance Threshold[1]	129	1,020	14	6
Thresholds Exceeded?	***No***	***No***	***No***	***No***

Notes:
1. The Localized Significance Threshold was determined using Appendix C of the SCAQMD Final Localized Significant Threshold Methodology guidance document for pollutants NO_X, CO, PM_{10}, and $PM_{2.5}$. The Localized Significance Threshold was based on the anticipated daily acreage disturbance for construction, the distance to sensitive receptors, and the source receptor area (SRA 20).
2. The Demolition Phase represents the worst case scenario for NO_X and CO.
3. The Grading Phase represents the worst case scenario for PM_{10}, and $PM_{2.5}$.
4. The Building Construction Phase represents the worst case scenario for NO_x, CO, PM_{10}, and $PM_{2.5}$.

Operations

For project operations, the five acre threshold was conservatively utilized, as the project site is approximately 7.56 acres. As the nearest sensitive uses are located approximately 126 feet (38 meters) to the northwest of the project site, the LST values for 38 meters were interpolated between the 25 meter and 50 meter values. As seen in Table 8, *Localized Significance of Operational Emissions*, project-related mitigated operational area source emissions would be negligible and would be below the LSTs. As such, operational LST impacts would be less than significant in this regard.

Table 8
Localized Significance of Operational Emissions

Source	Pollutant (pounds/day)			
	NO_X	**CO**	**PM_{10}**	**$PM_{2.5}$**
Area Source Emissions	0.15	0.10	0.0	0.0
Localized Significance Threshol[1]	193	690	8	3
Thresholds Exceeded?	***No***	***No***	***No***	***No***

Note:
1. The Localized Significance Threshold was determined using Appendix C of the SCAQMD Final Localized Significant Threshold Methodology guidance document for pollutants NO_X, CO, PM_{10}, and $PM_{2.5}$. The Localized Significance Threshold was based on the total acreage, the distance to sensitive receptors, and the source receptor area (SRA 20).

CARBON MONOXIDE HOTSPOTS

Intersection Hotspots

CO emissions are a function of vehicle idling time, meteorological conditions, and traffic flow. Under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthful levels (i.e., adversely affecting residents, school children, hospital patients, the elderly, etc.).

The SCAQMD requires a quantified assessment of CO hotspots when a project increases the volume-to-capacity ratio (also called the intersection capacity utilization) by 0.02 (two percent) for any intersection with an existing level of service LOS D or worse. Because traffic congestion is highest at intersections where vehicles queue and are subject to reduced speeds, these hot spots are typically produced at intersections.

The project is located in the South Coast Air Basin (Basin), which is designated as an attainment/maintenance area for the Federal CO standards and an attainment area for State standards. There has been a decline in CO emissions even though vehicle miles traveled on U.S. urban and rural roads have increased. On-road mobile source CO emissions have declined 24 percent between 1989 and 1998, despite a 23 percent rise in motor vehicle miles traveled over the same 10 years. California trends have been consistent with national trends; CO emissions declined 20 percent in California from 1985 through 1997 while vehicle miles traveled increased 18 percent in the 1990s. CO emissions have continued to decline since this time. The Basin was re-designated as attainment in 2007, and is no longer addressed in the SCAQMD's AQMP. Three major control programs have contributed to the reduced per-vehicle CO emissions: exhaust standards, cleaner burning fuels, and motor vehicle inspection/maintenance programs.

A detailed CO analysis was conducted in the *Federal Attainment Plan for Carbon Monoxide* (CO Plan) for the SCAQMD's 2003 Air Quality Management Plan. The 2003 *Air Quality Management*

Plan is the most recent AQMP that addresses CO concentrations. The locations selected for microscale modeling in the CO Plan are worst-case intersections in the Basin, and would likely experience the highest CO concentrations. Thus, CO analysis within the CO Plan is utilized in a comparison to the proposed project, since it represents a worst-case scenario with heavy traffic volumes within the Basin.

Of these locations, the Wilshire Boulevard/Veteran Avenue intersection in Los Angeles experienced the highest CO concentration (4.6 parts per million [ppm]), which is well below the 35-ppm 1-hr CO Federal standard. The Wilshire Boulevard/Veteran Avenue intersection is one of the most congested intersections in Southern California with an average daily traffic (ADT) volume of approximately 100,000 vehicles per day. As the CO hotspots were not experienced at the Wilshire Boulevard/Veteran Avenue intersection, it can be reasonably inferred that CO hotspots would not be experienced at any intersections within the vicinity of the project site due to the low volume of traffic (5,503 new daily trips) that would occur as a result of project implementation. Therefore, impacts would be less than significant in this regard.

Mitigation Measures: Refer to Mitigation Measure AQ-1.

Level of Significance After Mitigation. *Less Than Significant Impact.*

AQ-5 CREATE OBJECTIONABLE ODORS AFFECTING A SUBSTANTIAL NUMBER OF PEOPLE?

Level of Significance Before Mitigation: *Less Than Significant Impact.*

According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project does not include any uses identified by the SCAQMD as being associated with odors.

Construction activities associated with the project may generate detectable odors from heavy-duty equipment exhaust. Construction-related odors would be short-term in nature, dissipate rapidly, and cease upon project completion. Any impacts to existing adjacent land uses would be short-term and are less than significant.

Mitigation Measures: No mitigation measures are required.

Level of Significance After Mitigation. *Less Than Significant Impact.*

6.0 REFERENCES

6.1 LIST OF PREPARERS

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6.2 DOCUMENTS

1. City of Irvine, *City of Irvine General Plan*, Supp. No. 9, July 2015.

2. City of Irvine, *Municipal Code*, codified through Ordinance No. 15-02, adopted April 28, 2015.

3. City of Irvine, *CEQA Manual*, May 2012.

4. South Coast Air Quality Management District, *2016 Air Quality Management Plan*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan, accessed April 24, 2017.

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7. South Coast Air Quality Management District, *Regulation XI Source Specific Standards*, http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/r1113.pdf?sfvrsn=15, accessed on April 24, 2017.

8. Stantec Consulting Services, *Bison Parking Lot Traffic Study*, April 4, 2017.

9. UCI Transportation, *2016 Bison Ave Surface Lot – Scheme 3*, January 26, 2017.

10. U.S. Climate Data, *Climate Irvine - California*, http://www.usclimatedata.com/climate/irvine/california/united-states/usca2494, accessed on April 8, 2017.

6.3 WEB SITES/PROGRAMS

California Air Resources Board, *Aerometric Data Analysis and Measurement System (ADAM)*, summaries from 2013 to 2015, http://www.arb.ca.gov/adam.

Environ International Corporation and the South Coast Air Quality Management District, *California Emissions Estimator Model (CalEEMod) Version 2016.3.1*, 2016.

Google Earth, 2017.

APPENDIX A: AIR QUALITY EMISSIONS DATA

UCI Bison Parking Lot

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	1,000.00	Space	7.56	330,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2017
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per Construction Questionnaire

Construction Phase - Per Construction Questionnaire

Off-road Equipment -

Off-road Equipment - Per Construction Questionnaire

Off-road Equipment - Per Construction Questionnaire

Off-road Equipment - Per Construction Questionnaire

Trips and VMT - Cut/fill balanced onsite

Grading - Per Construction Questionnaire

Vehicle Trips - Trip rates per Traffic Study

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	20.00	22.00
tblConstructionPhase	NumDays	20.00	44.00
tblConstructionPhase	NumDays	20.00	42.00
tblGrading	AcresOfGrading	22.00	7.56
tblGrading	MaterialExported	0.00	45,000.00
tblGrading	MaterialImported	0.00	45,000.00
tblLandUse	BuildingSpaceSquareFeet	400,000.00	330,000.00
tblLandUse	LandUseSquareFeet	400,000.00	330,000.00
tblLandUse	LotAcreage	9.00	7.56
tblOffRoadEquipment	HorsePower	158.00	81.00
tblOffRoadEquipment	HorsePower	402.00	247.00
tblOffRoadEquipment	HorsePower	97.00	158.00
tblOffRoadEquipment	LoadFactor	0.38	0.73
tblOffRoadEquipment	LoadFactor	0.38	0.40
tblOffRoadEquipment	LoadFactor	0.37	0.38
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblProjectCharacteristics	OperationalYear	2018	2017
tblTripsAndVMT	HaulingTripLength	20.00	0.20
tblVehicleTrips	CC_TTP	0.00	35.80
tblVehicleTrips	CNW_TTP	0.00	43.20
tblVehicleTrips	CW_TTP	0.00	21.00
tblVehicleTrips	ST_TR	0.00	5.50
tblVehicleTrips	SU_TR	0.00	5.50
tblVehicleTrips	WD_TR	0.00	5.50

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	8.2782	84.6506	42.3106	0.0806	12.7068	4.3232	14.6946	6.7413	4.0018	8.5705	0.0000	8,192.0556	8,192.0556	2.2931	0.0000	8,249.3825
2018	3.6762	45.3348	18.5395	0.0408	12.7050	1.8000	14.5050	6.7408	1.6563	8.3972	0.0000	4,165.7910	4,165.7910	1.1803	0.0000	4,195.2972
Maximum	**8.2782**	**84.6506**	**42.3106**	**0.0806**	**12.7068**	**4.3232**	**14.6946**	**6.7413**	**4.0018**	**8.5705**	**0.0000**	**8,192.0556**	**8,192.0556**	**2.2931**	**0.0000**	**8,249.3825**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	8.2782	84.6506	42.3106	0.0806	5.1076	4.3232	7.0954	2.6694	4.0018	4.4987	0.0000	8,192.0556	8,192.0556	2.2931	0.0000	8,249.3825
2018	3.6762	45.3348	18.5395	0.0408	5.1058	1.8000	6.9058	2.6690	1.6563	4.3253	0.0000	4,165.7910	4,165.7910	1.1803	0.0000	4,195.2972
Maximum	**8.2782**	**84.6506**	**42.3106**	**0.0806**	**5.1076**	**4.3232**	**7.0954**	**2.6694**	**4.0018**	**4.4987**	**0.0000**	**8,192.0556**	**8,192.0556**	**2.2931**	**0.0000**	**8,249.3825**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.81**	**0.00**	**52.05**	**60.40**	**0.00**	**48.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1521	9.9000e-004	0.1040	1.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004		0.2189	0.2189	6.1000e-004		0.2341
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	7.0777	14.0607	32.8990	0.0165	0.0000	0.0408	0.0408	0.0000	0.0381	0.0381		1,654.7925	1,654.7925	0.3891		1,664.5198
Total	**7.2298**	**14.0617**	**33.0030**	**0.0165**	**0.0000**	**0.0412**	**0.0412**	**0.0000**	**0.0385**	**0.0385**		**1,655.0113**	**1,655.0113**	**0.3897**	**0.0000**	**1,664.7538**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1521	9.9000e-004	0.1040	1.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004		0.2189	0.2189	6.1000e-004		0.2341
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	7.0777	14.0607	32.8990	0.0165	0.0000	0.0408	0.0408	0.0000	0.0381	0.0381		1,654.7925	1,654.7925	0.3891		1,664.5198
Total	**7.2298**	**14.0617**	**33.0030**	**0.0165**	**0.0000**	**0.0412**	**0.0412**	**0.0000**	**0.0385**	**0.0385**		**1,655.0113**	**1,655.0113**	**0.3897**	**0.0000**	**1,664.7538**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	11/1/2017	11/30/2017	5	22	
2	Grading	Grading	12/1/2017	1/31/2018	5	44	
3	Paving	Paving	2/1/2018	3/30/2018	5	42	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 7.56

Acres of Paving: 7.56

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	2	8.00	81	0.73
Demolition	Off-Highway Trucks	3	8.00	247	0.40
Demolition	Rubber Tired Dozers	3	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	8.00	158	0.38
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Off-Highway Trucks	1		402	0.38
Grading	Rollers	2		80	0.38
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cranes	1		231	0.29
Paving	Off-Highway Trucks	3		402	0.38
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Skid Steer Loaders	1		65	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	11	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	3,313.00	14.70	6.90	0.20	LD_Mix	HDT_Mix	HHDT
Paving	11	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	8.1219	84.5437	41.1593	0.0774		4.3211	4.3211		3.9999	3.9999		7,876.2964	7,876.2964	2.2838		7,933.3923
Total	**8.1219**	**84.5437**	**41.1593**	**0.0774**		**4.3211**	**4.3211**		**3.9999**	**3.9999**		**7,876.2964**	**7,876.2964**	**2.2838**		**7,933.3923**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Worker	0.1563	0.1069	1.1513	3.1700e-003	0.3130	2.0800e-003	0.3151	0.0830	1.9200e-003	0.0849		315.7592	315.7592	9.2400e-003		315.9902
Total	**0.1563**	**0.1069**	**1.1513**	**3.1700e-003**	**0.3130**	**2.0800e-003**	**0.3151**	**0.0830**	**1.9200e-003**	**0.0849**		**315.7592**	**315.7592**	**9.2400e-003**		**315.9902**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	8.1219	84.5437	41.1593	0.0774		4.3211	4.3211		3.9999	3.9999	0.0000	7,876.2964	7,876.2964	2.2838		7,933.3923
Total	**8.1219**	**84.5437**	**41.1593**	**0.0774**		**4.3211**	**4.3211**		**3.9999**	**3.9999**	**0.0000**	**7,876.2964**	**7,876.2964**	**2.2838**		**7,933.3923**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1563	0.1069	1.1513	3.1700e-003	0.3130	2.0800e-003	0.3151	0.0830	1.9200e-003	0.0849		315.7592	315.7592	9.2400e-003		315.9902
Total	**0.1563**	**0.1069**	**1.1513**	**3.1700e-003**	**0.3130**	**2.0800e-003**	**0.3151**	**0.0830**	**1.9200e-003**	**0.0849**		**315.7592**	**315.7592**	**9.2400e-003**		**315.9902**

3.3 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.4577	0.0000	12.4577	6.6752	0.0000	6.6752			0.0000			0.0000
Off-Road	3.6681	41.1657	16.9432	0.0320		1.9739	1.9739		1.8160	1.8160		3,275.3442	3,275.3442	1.0036		3,300.4332
Total	**3.6681**	**41.1657**	**16.9432**	**0.0320**	**12.4577**	**1.9739**	**14.4316**	**6.6752**	**1.8160**	**8.4912**		**3,275.3442**	**3,275.3442**	**1.0036**		**3,300.4332**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1903	7.5133	1.6769	6.4800e-003	0.0256	0.0124	0.0380	6.8300e-003	0.0119	0.0187		714.2635	714.2635	0.1857		718.9052
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1116	0.0763	0.8224	2.2600e-003	0.2236	1.4900e-003	0.2250	0.0593	1.3700e-003	0.0607		225.5423	225.5423	6.6000e-003		225.7073
Total	**0.3019**	**7.5897**	**2.4992**	**8.7400e-003**	**0.2491**	**0.0139**	**0.2630**	**0.0661**	**0.0133**	**0.0794**		**939.8058**	**939.8058**	**0.1923**		**944.6125**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.8585	0.0000	4.8585	2.6033	0.0000	2.6033			0.0000			0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	3.6681	41.1657	16.9432	0.0320		1.9739	1.9739		1.8160	1.8160	0.0000	3,275.3442	3,275.3442	1.0036		3,300.4332
Total	**3.6681**	**41.1657**	**16.9432**	**0.0320**	**4.8585**	**1.9739**	**6.8324**	**2.6033**	**1.8160**	**4.4193**	**0.0000**	**3,275.3442**	**3,275.3442**	**1.0036**		**3,300.4332**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day							lb/day			
Hauling	0.1903	7.5133	1.6769	6.4800e-003	0.0256	0.0124	0.0380	6.8300e-003	0.0119	0.0187		714.2635	714.2635	0.1857		718.9052
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1116	0.0763	0.8224	2.2600e-003	0.2236	1.4900e-003	0.2250	0.0593	1.3700e-003	0.0607		225.5423	225.5423	6.6000e-003		225.7073
Total	**0.3019**	**7.5897**	**2.4992**	**8.7400e-003**	**0.2491**	**0.0139**	**0.2630**	**0.0661**	**0.0133**	**0.0794**		**939.8058**	**939.8058**	**0.1923**		**944.6125**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day							lb/day			
Fugitive Dust					12.4577	0.0000	12.4577	6.6752	0.0000	6.6752			0.0000			0.0000
Off-Road	3.4071	37.9730	16.2800	0.0320		1.7893	1.7893		1.6461	1.6461		3,222.6430	3,222.6430	1.0033		3,247.7243
Total	**3.4071**	**37.9730**	**16.2800**	**0.0320**	**12.4577**	**1.7893**	**14.2470**	**6.6752**	**1.6461**	**8.3213**		**3,222.6430**	**3,222.6430**	**1.0033**		**3,247.7243**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1682	7.2949	1.5300	6.5500e-003	0.0238	9.2100e-003	0.0330	6.3900e-003	8.8100e-003	0.0152		724.1885	724.1885	0.1712		728.4679
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1009	0.0669	0.7294	2.2000e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		218.9595	218.9595	5.8200e-003		219.1050
Total	**0.2691**	**7.3618**	**2.2595**	**8.7500e-003**	**0.2473**	**0.0107**	**0.2580**	**0.0657**	**0.0102**	**0.0759**		**943.1479**	**943.1479**	**0.1770**		**947.5729**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.8585	0.0000	4.8585	2.6033	0.0000	2.6033			0.0000			0.0000
Off-Road	3.4071	37.9730	16.2800	0.0320		1.7893	1.7893		1.6461	1.6461	0.0000	3,222.6430	3,222.6430	1.0033		3,247.7243
Total	**3.4071**	**37.9730**	**16.2800**	**0.0320**	**4.8585**	**1.7893**	**6.6478**	**2.6033**	**1.6461**	**4.2495**	**0.0000**	**3,222.6430**	**3,222.6430**	**1.0033**		**3,247.7243**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1682	7.2949	1.5300	6.5500e-003	0.0238	9.2100e-003	0.0330	6.3900e-003	8.8100e-003	0.0152		724.1885	724.1885	0.1712		728.4679

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1009	0.0669	0.7294	2.2000e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		218.9595	218.9595	5.8200e-003		219.1050
Total	**0.2691**	**7.3618**	**2.2595**	**8.7500e-003**	**0.2473**	**0.0107**	**0.2580**	**0.0657**	**0.0102**	**0.0759**		**943.1479**	**943.1479**	**0.1770**		**947.5729**

3.4 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6437	17.5209	14.7964	0.0228		0.9561	0.9561		0.8797	0.8797		2,294.0887	2,294.0887	0.7142		2,311.9432
Paving	0.4716					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1153**	**17.5209**	**14.7964**	**0.0228**		**0.9561**	**0.9561**		**0.8797**	**0.8797**		**2,294.0887**	**2,294.0887**	**0.7142**		**2,311.9432**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1412	0.0937	1.0212	3.0800e-003	0.3130	2.0700e-003	0.3150	0.0830	1.9000e-003	0.0849		306.5433	306.5433	8.1500e-003		306.7470
Total	**0.1412**	**0.0937**	**1.0212**	**3.0800e-003**	**0.3130**	**2.0700e-003**	**0.3150**	**0.0830**	**1.9000e-003**	**0.0849**		**306.5433**	**306.5433**	**8.1500e-003**		**306.7470**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Off-Road	1.6437	17.5209	14.7964	0.0228		0.9561	0.9561		0.8797	0.8797	0.0000	2,294.0887	2,294.0887	0.7142		2,311.9432
Paving	0.4716					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1153**	**17.5209**	**14.7964**	**0.0228**		**0.9561**	**0.9561**		**0.8797**	**0.8797**	**0.0000**	**2,294.0887**	**2,294.0887**	**0.7142**		**2,311.9432**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1412	0.0937	1.0212	3.0800e-003	0.3130	2.0700e-003	0.3150	0.0830	1.9000e-003	0.0849		306.5433	306.5433	8.1500e-003		306.7470
Total	**0.1412**	**0.0937**	**1.0212**	**3.0800e-003**	**0.3130**	**2.0700e-003**	**0.3150**	**0.0830**	**1.9000e-003**	**0.0849**		**306.5433**	**306.5433**	**8.1500e-003**		**306.7470**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.0777	14.0607	32.8990	0.0165	0.0000	0.0408	0.0408	0.0000	0.0381	0.0381		1,654.792 5	1,654.792 5	0.3891		1,664.519 8
Unmitigated	7.0777	14.0607	32.8990	0.0165	0.0000	0.0408	0.0408	0.0000	0.0381	0.0381		1,654.792 5	1,654.792 5	0.3891		1,664.519 8

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	5,500.00	5,500.00	5500.00		
Total	5,500.00	5,500.00	5,500.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	16.60	8.40	6.90	21.00	35.80	43.20	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.543066	0.045258	0.213197	0.125617	0.019254	0.005808	0.023323	0.014742	0.001554	0.001731	0.004738	0.000577	0.001134

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1521	9.9000e-004	0.1040	1.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004		0.2189	0.2189	6.1000e-004		0.2341
Unmitigated	0.1521	9.9000e-004	0.1040	1.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004		0.2189	0.2189	6.1000e-004		0.2341

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0251					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1169					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0100	9.9000e-004	0.1040	1.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004		0.2189	0.2189	6.1000e-004		0.2341
Total	**0.1521**	**9.9000e-004**	**0.1040**	**1.0000e-005**		**3.8000e-004**	**3.8000e-004**		**3.8000e-004**	**3.8000e-004**		**0.2189**	**0.2189**	**6.1000e-004**		**0.2341**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0251					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1169					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0100	9.9000e-004	0.1040	1.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004		0.2189	0.2189	6.1000e-004		0.2341
Total	**0.1521**	**9.9000e-004**	**0.1040**	**1.0000e-005**		**3.8000e-004**	**3.8000e-004**		**3.8000e-004**	**3.8000e-004**		**0.2189**	**0.2189**	**6.1000e-004**		**0.2341**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

UCI Bison Parking Lot
Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	1,000.00	Space	7.56	330,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2017
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per Construction Questionnaire

Construction Phase - Per Construction Questionnaire

Off-road Equipment -

Off-road Equipment - Per Construction Questionnaire

Off-road Equipment - Per Construction Questionnaire

Off-road Equipment - Per Construction Questionnaire

Trips and VMT - Cut/fill balanced onsite

Grading - Per Construction Questionnaire

Vehicle Trips - Trip rates per Traffic Study

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	20.00	22.00
tblConstructionPhase	NumDays	20.00	44.00
tblConstructionPhase	NumDays	20.00	42.00
tblGrading	AcresOfGrading	22.00	7.56
tblGrading	MaterialExported	0.00	45,000.00
tblGrading	MaterialImported	0.00	45,000.00
tblLandUse	BuildingSpaceSquareFeet	400,000.00	330,000.00
tblLandUse	LandUseSquareFeet	400,000.00	330,000.00
tblLandUse	LotAcreage	9.00	7.56
tblOffRoadEquipment	HorsePower	158.00	81.00
tblOffRoadEquipment	HorsePower	402.00	247.00
tblOffRoadEquipment	HorsePower	97.00	158.00
tblOffRoadEquipment	LoadFactor	0.38	0.73
tblOffRoadEquipment	LoadFactor	0.38	0.40
tblOffRoadEquipment	LoadFactor	0.37	0.38
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblProjectCharacteristics	OperationalYear	2018	2017
tblTripsAndVMT	HaulingTripLength	20.00	0.20
tblVehicleTrips	CC_TTP	0.00	35.80
tblVehicleTrips	CNW_TTP	0.00	43.20
tblVehicleTrips	CW_TTP	0.00	21.00
tblVehicleTrips	ST_TR	0.00	5.50
tblVehicleTrips	SU_TR	0.00	5.50
tblVehicleTrips	WD_TR	0.00	5.50

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	8.2608	84.6409	42.3947	0.0808	12.7068	4.3232	14.6920	6.7413	4.0018	8.5680	0.0000	8,209.8818	8,209.8818	2.2935	0.0000	8,267.2202
2018	3.6470	45.6188	18.2369	0.0417	12.7050	1.7978	14.5028	6.7408	1.6543	8.3951	0.0000	4,274.4624	4,274.4624	1.1619	0.0000	4,303.5090
Maximum	**8.2608**	**84.6409**	**42.3947**	**0.0808**	**12.7068**	**4.3232**	**14.6920**	**6.7413**	**4.0018**	**8.5680**	**0.0000**	**8,209.8818**	**8,209.8818**	**2.2935**	**0.0000**	**8,267.2202**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	8.2608	84.6409	42.3947	0.0808	5.1076	4.3232	7.0928	2.6694	4.0018	4.4962	0.0000	8,209.8818	8,209.8818	2.2935	0.0000	8,267.2202
2018	3.6470	45.6188	18.2369	0.0417	5.1058	1.7978	6.9036	2.6690	1.6543	4.3232	0.0000	4,274.4624	4,274.4624	1.1619	0.0000	4,303.5090
Maximum	**8.2608**	**84.6409**	**42.3947**	**0.0808**	**5.1076**	**4.3232**	**7.0928**	**2.6694**	**4.0018**	**4.4962**	**0.0000**	**8,209.8818**	**8,209.8818**	**2.2935**	**0.0000**	**8,267.2202**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.81**	**0.00**	**52.06**	**60.40**	**0.00**	**48.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1521	9.9000e-004	0.1040	1.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004		0.2189	0.2189	6.1000e-004		0.2341
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	7.0742	14.2111	27.9742	0.0174	0.0000	0.0374	0.0374	0.0000	0.0348	0.0348		1,762.5809	1,762.5809	0.3470		1,771.2569
Total	**7.2263**	**14.2121**	**28.0783**	**0.0174**	**0.0000**	**0.0378**	**0.0378**	**0.0000**	**0.0352**	**0.0352**		**1,762.7997**	**1,762.7997**	**0.3477**	**0.0000**	**1,771.4910**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1521	9.9000e-004	0.1040	1.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004		0.2189	0.2189	6.1000e-004		0.2341
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	7.0742	14.2111	27.9742	0.0174	0.0000	0.0374	0.0374	0.0000	0.0348	0.0348		1,762.5809	1,762.5809	0.3470		1,771.2569
Total	**7.2263**	**14.2121**	**28.0783**	**0.0174**	**0.0000**	**0.0378**	**0.0378**	**0.0000**	**0.0352**	**0.0352**		**1,762.7997**	**1,762.7997**	**0.3477**	**0.0000**	**1,771.4910**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	11/1/2017	11/30/2017	5	22	
2	Grading	Grading	12/1/2017	1/31/2018	5	44	
3	Paving	Paving	2/1/2018	3/30/2018	5	42	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 7.56

Acres of Paving: 7.56

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	2	8.00	81	0.73
Demolition	Off-Highway Trucks	3	8.00	247	0.40
Demolition	Rubber Tired Dozers	3	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	8.00	158	0.38
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Off-Highway Trucks	1		402	0.38
Grading	Rollers	2		80	0.38
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cranes	1		231	0.29
Paving	Off-Highway Trucks	3		402	0.38
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Skid Steer Loaders	1		65	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	11	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	3,313.00	14.70	6.90	0.20	LD_Mix	HDT_Mix	HHDT
Paving	11	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	8.1219	84.5437	41.1593	0.0774		4.3211	4.3211		3.9999	3.9999		7,876.2964	7,876.2964	2.2838		7,933.3923
Total	**8.1219**	**84.5437**	**41.1593**	**0.0774**		**4.3211**	**4.3211**		**3.9999**	**3.9999**		**7,876.2964**	**7,876.2964**	**2.2838**		**7,933.3923**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Worker	0.1389	0.0972	1.2354	3.3500e-003	0.3130	2.0800e-003	0.3151	0.0830	1.9200e-003	0.0849		333.5854	333.5854	9.7000e-003		333.8279
Total	**0.1389**	**0.0972**	**1.2354**	**3.3500e-003**	**0.3130**	**2.0800e-003**	**0.3151**	**0.0830**	**1.9200e-003**	**0.0849**		**333.5854**	**333.5854**	**9.7000e-003**		**333.8279**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	8.1219	84.5437	41.1593	0.0774		4.3211	4.3211		3.9999	3.9999	0.0000	7,876.2964	7,876.2964	2.2838		7,933.3923
Total	**8.1219**	**84.5437**	**41.1593**	**0.0774**		**4.3211**	**4.3211**		**3.9999**	**3.9999**	**0.0000**	**7,876.2964**	**7,876.2964**	**2.2838**		**7,933.3923**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1389	0.0972	1.2354	3.3500e-003	0.3130	2.0800e-003	0.3151	0.0830	1.9200e-003	0.0849		333.5854	333.5854	9.7000e-003		333.8279
Total	**0.1389**	**0.0972**	**1.2354**	**3.3500e-003**	**0.3130**	**2.0800e-003**	**0.3151**	**0.0830**	**1.9200e-003**	**0.0849**		**333.5854**	**333.5854**	**9.7000e-003**		**333.8279**

3.3 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.4577	0.0000	12.4577	6.6752	0.0000	6.6752			0.0000			0.0000
Off-Road	3.6681	41.1657	16.9432	0.0320		1.9739	1.9739		1.8160	1.8160		3,275.3442	3,275.3442	1.0036		3,300.4332
Total	**3.6681**	**41.1657**	**16.9432**	**0.0320**	**12.4577**	**1.9739**	**14.4316**	**6.6752**	**1.8160**	**8.4912**		**3,275.3442**	**3,275.3442**	**1.0036**		**3,300.4332**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1706	7.8150	1.2923	7.3300e-003	0.0256	9.8200e-003	0.0354	6.8300e-003	9.3900e-003	0.0162		808.1940	808.1940	0.1658		812.3389
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0992	0.0694	0.8825	2.3900e-003	0.2236	1.4900e-003	0.2250	0.0593	1.3700e-003	0.0607		238.2753	238.2753	6.9300e-003		238.4485
Total	**0.2698**	**7.8844**	**2.1747**	**9.7200e-003**	**0.2491**	**0.0113**	**0.2604**	**0.0661**	**0.0108**	**0.0769**		**1,046.4692**	**1,046.4692**	**0.1727**		**1,050.7874**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.8585	0.0000	4.8585	2.6033	0.0000	2.6033			0.0000			0.0000

Off-Road	3.6681	41.1657	16.9432	0.0320		1.9739	1.9739		1.8160	1.8160	0.0000	3,275.3442	3,275.3442	1.0036		3,300.4332
Total	**3.6681**	**41.1657**	**16.9432**	**0.0320**	**4.8585**	**1.9739**	**6.8324**	**2.6033**	**1.8160**	**4.4193**	**0.0000**	**3,275.3442**	**3,275.3442**	**1.0036**		**3,300.4332**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1706	7.8150	1.2923	7.3300e-003	0.0256	9.8200e-003	0.0354	6.8300e-003	9.3900e-003	0.0162		808.1940	808.1940	0.1658		812.3389
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0992	0.0694	0.8825	2.3900e-003	0.2236	1.4900e-003	0.2250	0.0593	1.3700e-003	0.0607		238.2753	238.2753	6.9300e-003		238.4485
Total	**0.2698**	**7.8844**	**2.1747**	**9.7200e-003**	**0.2491**	**0.0113**	**0.2604**	**0.0661**	**0.0108**	**0.0769**		**1,046.4692**	**1,046.4692**	**0.1727**		**1,050.7874**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.4577	0.0000	12.4577	6.6752	0.0000	6.6752			0.0000			0.0000
Off-Road	3.4071	37.9730	16.2800	0.0320		1.7893	1.7893		1.6461	1.6461		3,222.6430	3,222.6430	1.0033		3,247.7243
Total	**3.4071**	**37.9730**	**16.2800**	**0.0320**	**12.4577**	**1.7893**	**14.2470**	**6.6752**	**1.6461**	**8.3213**		**3,222.6430**	**3,222.6430**	**1.0033**		**3,247.7243**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1503	7.5849	1.1712	7.4200e-003	0.0238	7.0700e-003	0.0308	6.3900e-003	6.7600e-003	0.0131		820.4842	820.4842	0.1525		824.2963
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0896	0.0609	0.7856	2.3200e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		231.3351	231.3351	6.1300e-003		231.4883
Total	**0.2398**	**7.6457**	**1.9568**	**9.7400e-003**	**0.2473**	**8.5500e-003**	**0.2559**	**0.0657**	**8.1200e-003**	**0.0738**		**1,051.8193**	**1,051.8193**	**0.1586**		**1,055.7846**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.8585	0.0000	4.8585	2.6033	0.0000	2.6033			0.0000			0.0000
Off-Road	3.4071	37.9730	16.2800	0.0320		1.7893	1.7893		1.6461	1.6461	0.0000	3,222.6430	3,222.6430	1.0033		3,247.7243
Total	**3.4071**	**37.9730**	**16.2800**	**0.0320**	**4.8585**	**1.7893**	**6.6478**	**2.6033**	**1.6461**	**4.2495**	**0.0000**	**3,222.6430**	**3,222.6430**	**1.0033**		**3,247.7243**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1503	7.5849	1.1712	7.4200e-003	0.0238	7.0700e-003	0.0308	6.3900e-003	6.7600e-003	0.0131		820.4842	820.4842	0.1525		824.2963

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0896	0.0609	0.7856	2.3200e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		231.3351	231.3351	6.1300e-003		231.4883
Total	**0.2398**	**7.6457**	**1.9568**	**9.7400e-003**	**0.2473**	**8.5500e-003**	**0.2559**	**0.0657**	**8.1200e-003**	**0.0738**		**1,051.8193**	**1,051.8193**	**0.1586**		**1,055.7846**

3.4 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6437	17.5209	14.7964	0.0228		0.9561	0.9561		0.8797	0.8797		2,294.0887	2,294.0887	0.7142		2,311.9432
Paving	0.4716					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1153**	**17.5209**	**14.7964**	**0.0228**		**0.9561**	**0.9561**		**0.8797**	**0.8797**		**2,294.0887**	**2,294.0887**	**0.7142**		**2,311.9432**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1254	0.0852	1.0999	3.2500e-003	0.3130	2.0700e-003	0.3150	0.0830	1.9000e-003	0.0849		323.8692	323.8692	8.5800e-003		324.0836
Total	**0.1254**	**0.0852**	**1.0999**	**3.2500e-003**	**0.3130**	**2.0700e-003**	**0.3150**	**0.0830**	**1.9000e-003**	**0.0849**		**323.8692**	**323.8692**	**8.5800e-003**		**324.0836**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6437	17.5209	14.7964	0.0228		0.9561	0.9561		0.8797	0.8797	0.0000	2,294.0887	2,294.0887	0.7142		2,311.9432
Paving	0.4716					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1153**	**17.5209**	**14.7964**	**0.0228**		**0.9561**	**0.9561**		**0.8797**	**0.8797**	**0.0000**	**2,294.0887**	**2,294.0887**	**0.7142**		**2,311.9432**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1254	0.0852	1.0999	3.2500e-003	0.3130	2.0700e-003	0.3150	0.0830	1.9000e-003	0.0849		323.8692	323.8692	8.5800e-003		324.0836
Total	**0.1254**	**0.0852**	**1.0999**	**3.2500e-003**	**0.3130**	**2.0700e-003**	**0.3150**	**0.0830**	**1.9000e-003**	**0.0849**		**323.8692**	**323.8692**	**8.5800e-003**		**324.0836**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.0742	14.2111	27.9742	0.0174	0.0000	0.0374	0.0374	0.0000	0.0348	0.0348		1,762.5809	1,762.5809	0.3470		1,771.2569
Unmitigated	7.0742	14.2111	27.9742	0.0174	0.0000	0.0374	0.0374	0.0000	0.0348	0.0348		1,762.5809	1,762.5809	0.3470		1,771.2569

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	5,500.00	5,500.00	5500.00		
Total	5,500.00	5,500.00	5,500.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	16.60	8.40	6.90	21.00	35.80	43.20	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.543066	0.045258	0.213197	0.125617	0.019254	0.005808	0.023323	0.014742	0.001554	0.001731	0.004738	0.000577	0.001134

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	0.1521	9.9000e-004	0.1040	1.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004		0.2189	0.2189	6.1000e-004		0.2341
Unmitigated	0.1521	9.9000e-004	0.1040	1.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004		0.2189	0.2189	6.1000e-004		0.2341

6.2 Area by SubCategory

Unmitigated

SubCategory	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Architectural Coating	0.0251					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1169					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0100	9.9000e-004	0.1040	1.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004		0.2189	0.2189	6.1000e-004		0.2341
Total	**0.1521**	**9.9000e-004**	**0.1040**	**1.0000e-005**		**3.8000e-004**	**3.8000e-004**		**3.8000e-004**	**3.8000e-004**		**0.2189**	**0.2189**	**6.1000e-004**		**0.2341**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0251					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1169					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0100	9.9000e-004	0.1040	1.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004		0.2189	0.2189	6.1000e-004		0.2341
Total	**0.1521**	**9.9000e-004**	**0.1040**	**1.0000e-005**		**3.8000e-004**	**3.8000e-004**		**3.8000e-004**	**3.8000e-004**		**0.2189**	**0.2189**	**6.1000e-004**		**0.2341**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B

Biological Constraints Analysis

LSA

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CARLSBAD

FRESNO
PALM SPRINGS
PT. RICHMOND

RIVERSIDE
ROCKLIN
SAN LUIS OBISPO

March 15, 2016

Carl Taylor
Huitt-Zollars, Inc.
2603 Main Street, Suite 400
Irvine, CA 92614

Subject: Biological Constraints Analysis of the University of California, Irvine California Avenue Parking Study, Site 2, City of Irvine, County of Orange, California (LSA Project No. HZI1601)

Dear Mr. Taylor:

Per your request, LSA conducted a general assessment of the biological resources associated with the proposed University of California, Irvine (UCI) Parking Lot project (project) located east of the intersection of Bison and California Avenues in the City of Irvine, County of Orange, California (Figures 1 and 2; all figures attached). The study area is bounded by California Avenue to the southwest, Bison Avenue to the northwest, and Health Sciences Road to the east. The entirety of the study area is within the Central/Coastal Orange County Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP) Planning Area; however, it is not within the NCCP Reserve, Special Linkage, an Existing Use Area, or Nonreserve Open Space. The project proponent (University of California [UC] Regents) proposes to construct a parking lot within the study area.

This biological resources constraints analysis describes the site-specific survey methods, results of the surveys, and recommendations for the avoidance of known biological resources.

METHODS

As a part of this analysis, the California Department of Fish and Wildlife's (CDFW) Rarefind 3 and the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California were utilized to assist in determining the known existence or potential occurrence of any special-interest plant and animal species in or immediately adjacent to the study area.

LSA senior biologist Chris Meloni conducted a biological survey of the study area on February 23, 2016. During the survey, the entirety of the study area was covered on foot, and the existing biological resources were thoroughly assessed. This included identifying and classifying vegetation communities present in the study area, documenting the general site conditions, compiling an inventory of the vascular plant and animal species observed or otherwise detected on site, and searching for any special-status species present or potentially occurring on site.

RESULTS

Vegetation

A review of historic aerial photos indicates that the vegetation along the perimeter of the study area appears to have been installed as landscaping sometime between 1994 and 2002. The landscaping along the eastern perimeter of the study area and at the Bison Avenue and California Avenue intersection is largely composed of ornamental species including pine trees (*Pinus* sp.), turf grass, and myoporum (*Myoporm laetum*). The landscaping along Bison Avenue is a mix of nonnative and native species including pine trees, needlegrass (*Nassella* sp.), and California deergrass (*Muhlenbergia rigens*). The landscaping along California Avenue is also composed of a mix of native and nonnative species including acacia (*Acacia* sp.), rock rose (*Cistus creticus*), and coastal sage scrub (CSS) species. The interior of the study area is largely composed of ruderal and annual grassland habitats. Two areas of mulefat scrub are within the study area. Both are associated with drainages. The first is at the north end of the study area, and the second is in the eastern portion of the study area. A complete list of all species observed is presented in Attachment B.

Wildlife

The study area is relatively isolated from other open space areas; therefore, a limited amount of wildlife was observed in and around the study area. In addition, the site does not serve as a wildlife movement corridor. Wildlife species observed in or adjacent to the study area include Botta's pocket gopher (*Thomomys bottae*), desert cottontail (*Sylvilagus audubonii*), western kingbird (*Tyrannus verticalis*), red-shouldered hawk (*Buteo lineatus*), Anna's hummingbird (*Calypte anna*), house wren (*Troglodytes aedon*), coyote (*Canis latrans*), and western fence lizard (*Sceloporus occidentalis*).

A limited amount of native grassland and scrub habitats occur in the study area, and the study area is relatively isolated from other open space areas. Therefore, although many wildlife species have the potential to occur in the study area, it is unlikely that they do occur.

Special-Status Species

For the purposes of this report, special-status species are those plants or animals that (1) are federally and/or State-listed, (2) those species that are addressed within the NCCP/HCP, or (3) those plant species that are designated by the CNPS as Rare Plant Rank 1 species. Attachment C is a table that identifies those special-status plant and animal species known to occur or potentially occurring in the region. These species were compiled largely from database records from the CNPS electronic inventory and the California Natural Diversity Database and from LSA's extensive knowledge and experience in the region. This table contains detailed information regarding special-status plant and animal species' habitat and distribution, activity period, State and federal status designations, and probability of occurrence. The table excludes eight special-status species identified during the records search that are not expected to occur in the study area due to lack of appropriate habitat: salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*), Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*), Santa Ana sucker (*Catostomus santaanae*), tidewater goby (*Eucyclogobius newberryi*), western snowy plover (*Charadrius alexandrinus nivosus*), California black rail (*Laterallus jamaicensis coturniculus*), light-footed clapper rail (*Rallus longirostris levipes*), and California least tern (*Sternula antillarum browni*).

Due to the very small size of the study area and its relatively isolated nature, LSA identified two special-status plant species and three special-status animal species with at least a "moderate" probability of occurrence within the study area. The two special-status plant species with a "moderate" probability of occurrence are the many-stemmed dudleya (*Dudleya multicaulis*) and the southern tarplant (*Centromadia parryi* ssp. *australis*). Both plants are included on the CDFW "Special Plants" list and are designated as

Rare Plant Rank 1B by the CNPS. Neither of these two plant species were observed within the study area limits during the surveys. Signs (i.e., scat) of one special-status animal species (coyote; NCCP Identified Species) were observed within the study area. There are two special-status animal species (red-shouldered hawk and coastal California gnatcatcher [*Polioptila californica californica*]) with a "high" probability of occurrence within the study area. A red-shouldered hawk (NCCP Identified Species) was observed in the immediate vicinity of the study area and may forage within the study area. Marginally suitable nesting habitat for the hawk is present within the study area. There are many recorded observances of gnatcatchers (NCCP Target Species, Federally Threatened, California Species of Special Concern) in the open space to the east of the study area. A moderately-sized patch of CSS exists in the western portion of the study area. The CSS patch is likely too small for gnatcatcher territory and is likely too far from the CSS in the open space to provide foraging habitat. The patch does not provide connectivity between the CSS in the open space and larger patches of CSS elsewhere. However, gnatcatchers may utilize the CSS within the study area given the study area's proximity to known gnatcatcher observances and the existence of CSS within the study area.

Wetlands and Potential Jurisdictional Drainages

Two potentially jurisdictional drainages were observed within the study area. Both contain mulefat scrub habitat and are depicted on Figure 2. LSA recommends that a Jurisdictional Delineation Report be prepared to supplement this report.

IMPACTS AND RECOMMENDATIONS

The proposed project may result in direct impacts to grassland, mulefat scrub, and CSS habitats. CSS is a covered habitat under the NCCP/HCP, under which the UC Regents is a Participating Landowner and a signatory. As such, impacts to the CSS on site would be considered less than significant provided the clearing of CSS is monitored by a qualified biologist to ensure compliance with NCCP Construction Minimization Measures (Attachment D). Ruderal and grassland habitats are not considered sensitive habitats; however, even though they are not covered by the NCCP/HCP, these habitats are extensively preserved within the NCCP/HCP Reserve.

The mulefat scrub within the study area is associated with potentially jurisdictional drainages. A jurisdictional delineation is recommended if project activities are expected to impact the drainage features identified on Figure 2. Impacts to the drainages and associated riparian vegetation (i.e., mulefat scrub) may be considered significant if the drainages are found to be within the jurisdiction of the CDFW, the United States Army Corps of Engineers, and the Regional Water Quality Control Board.

Take of Identified Species is authorized on all lands owned or controlled by Participating Landowners outside the Reserve System as of the Effective Date of the NCCP/HCP Implementation Agreement. All of the land that may be utilized for the proposed project is owned by the UC Regents, a Participating Landowner. As such, impacts to the aforementioned habitats and those special-status wildlife species with at least a "moderate" probability of occurring on site outside the NCCP/HCP Reserve would be considered less than significant. Surveys for many-stemmed dudleya and southern tarplant are recommended. If substantial populations of many-stemmed dudleya or southern tarplant are identified within the study area, the lead agency (UC Regents) will determine if impacts are significant and, if necessary, propose mitigation.

Also, short-term construction-related impacts (e.g., nuisance noise) would be temporary and are not expected to be significant due to the absence of adjacent open space habitats.

In summary, the proposed project is not expected to result in any significant adverse impacts to biological resources within or immediately adjacent to the study area. Therefore, aside from the recommendations described above, no other mitigation measures are suggested or warranted.

If you have any questions or comments regarding this letter report, please feel free to contact me at (949) 553-0666.

Sincerely,

LSA ASSOCIATES, INC.

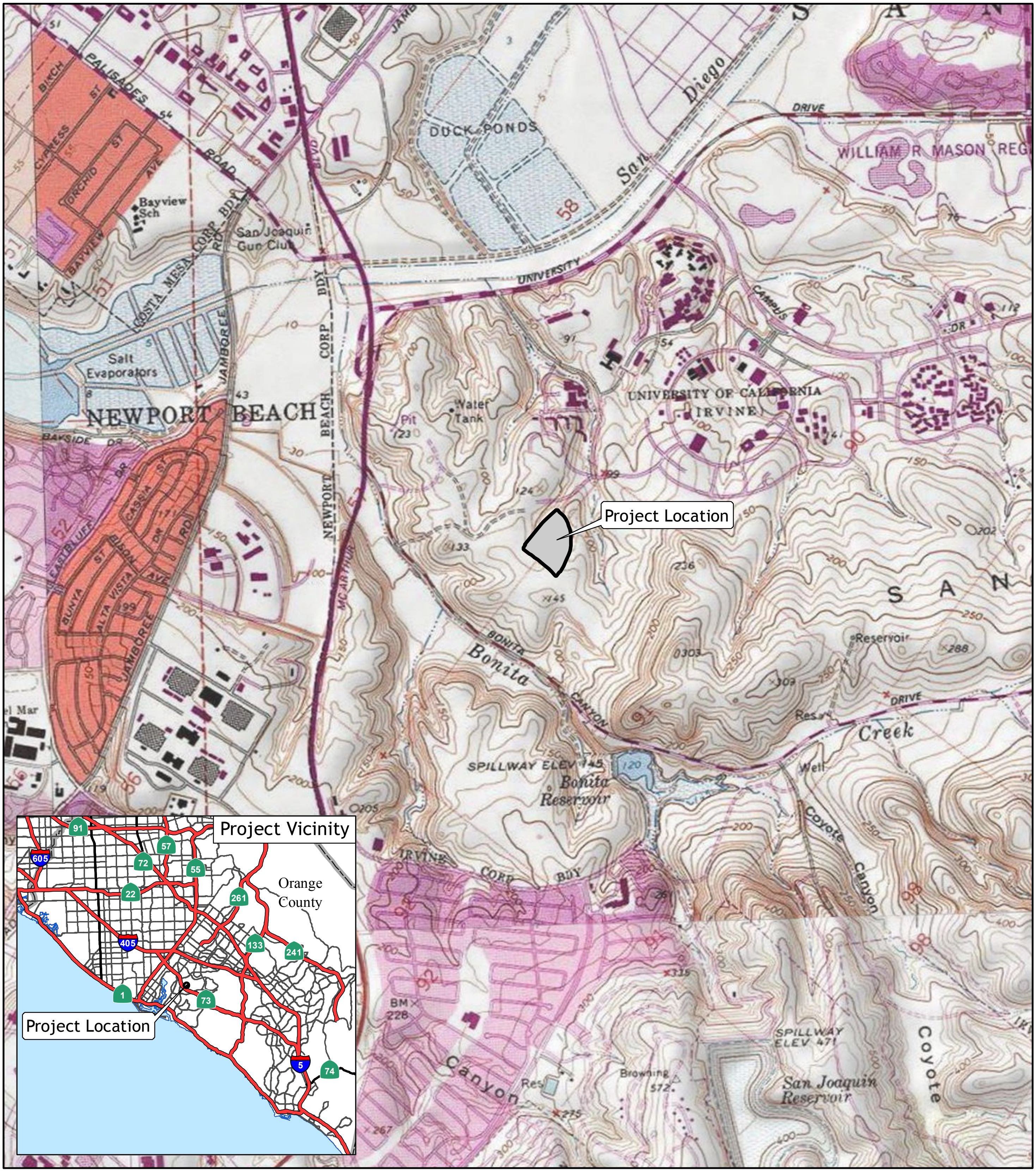
Christopher J. Meloni

Chris Meloni
Senior Biologist

Attachments: A: Figures 1 and 2
B: Observed Species List
C: Summary of Special-Interest Species
D: NCCP Construction Minimization Measures

ATTACHMENT A

FIGURES



LSA

LEGEND

Project Location

FIGURE 1

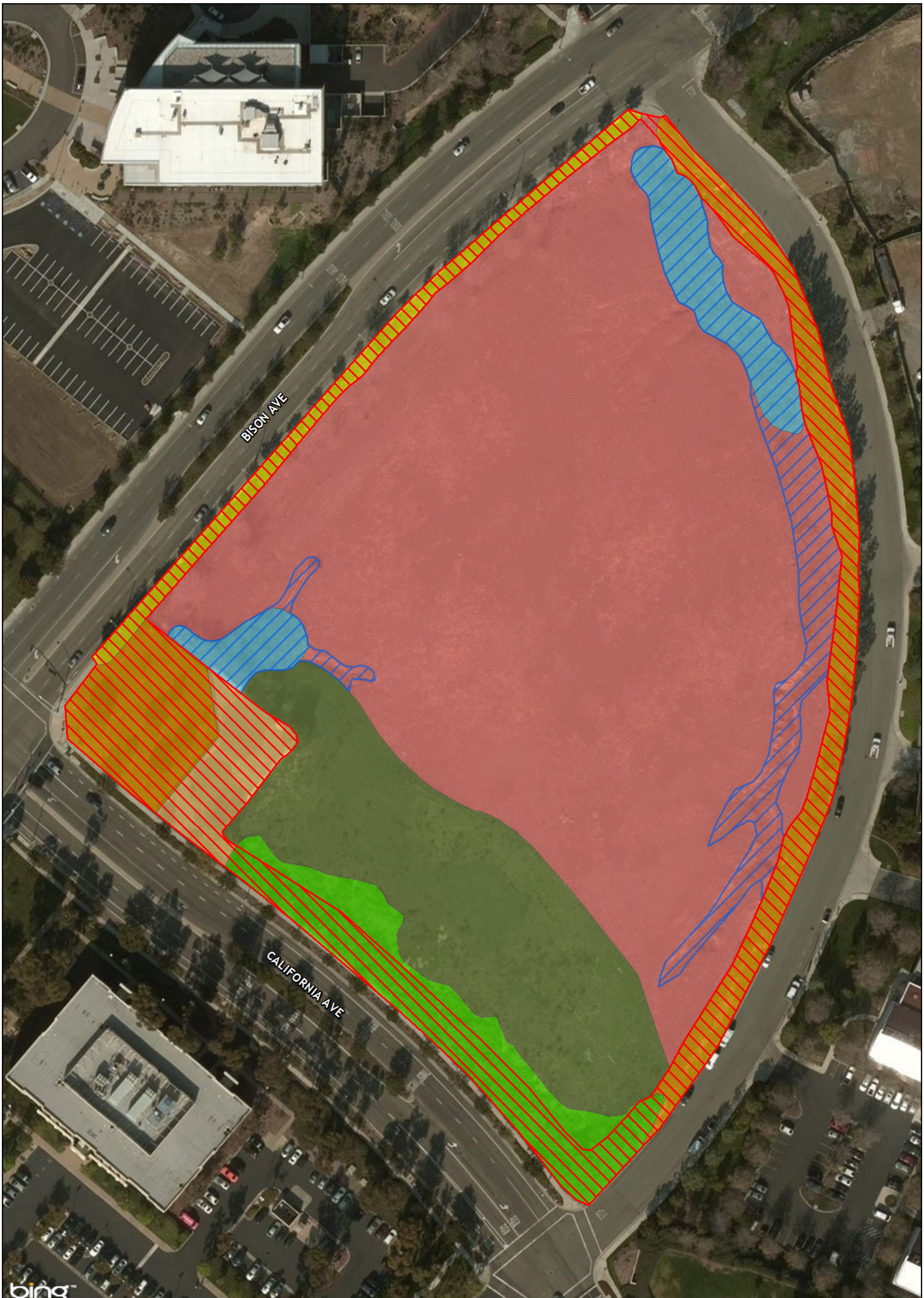
0 1000 2000
FEET

UCI Parking Study, Site 2

Project Location Map

SOURCE: USGS 7.5' Quad - Tustin (1981), CA

I:\HZI1601\GIS\ProjLocation.mxd (3/15/2016)



LSA

FIGURE 2

LEGEND

- Landscaping
- Potentially Jurisdictional Drainage
- Ornamental Landscaping
- Ornamental Landscaping w/ Native Grassland Component
- Coastal Sage Scrub
- Mulefat Scrub
- Annual Grassland
- Ruderal
- Disturbed

0 40 80
FEET

SOURCE: Bing Maps (2014)

UCI Parking Study, Site 2

Existing Site Conditions

I:\HZI1601\GIS\Habitat.mxd (3/15/2016)

ATTACHMENT B

OBSERVED SPECIES LIST

ATTACHMENT B: OBSERVED SPECIES LIST

Scientific Name	Common Name	Scientific Name	Common Name
**Acacia* sp.	acacia	**Foeniculum vulgare*	sweet fennel
Amsinkia menziesii	fiddleneck	*Gnaphalium californicum*	California everlasting
Artemisia californica	coastal sagebrush	*Grindelia camporum*	gumplant
**Atriplex semibacata*	Australian saltbush	*Heteromeles arbutifolia*	toyon
**Avena* sp.	wild oats	**Hirchfeldia incana*	shortpod mustard
Baccharis piluaris	coyote bush	*Isocoma menziesii*	coastal goldenbush
Baccharis salicifolia	mule fat	*Lepidium nitidum*	shining peppergrass
**Brassica nigra*	black mustard	**Malva parviflora*	cheeseweed
**Bromus diandrus*	ripgut brome	**Medicago polymorpha*	bur-clover
**Bromus madritensis*	red brome	**Mesembryanthemum crystallinum*	crystal ice plant
Calandrinia ciliata	red maids	*Microseris* sp.	microseris
**Carpobrotus edulis*	hottentot fig	*Muhlenbergia rigens*	California deergrass
**Centaurea melintensis*	tocalote	**Myoporum laetum*	myoporum
**Chenopodium album*	lamb's quarters	*Nassella* sp.	needlegrass
**Cistus creticus*	rock rose	*Opuntia littoralis*	coastal prickly pear
**Convolvulus arvensis*	bindweed	**Picris echioides*	bristly ox-tongue
Corethrogyne filaginifolia	sand aster	**Pinus* sp.	pine
**Cortaderia selloana*	pampas grass	*Plantago erecta*	California plantain
Crassula conata	pygmy stonecrop	*Rhus integrifolia*	lemonade berry
**Cynara cardunculus*	artichoke thistle	*Rumex* sp.	dock
Deinandra fasciculata	fascicled tarplant	*Salix lasiolepis*	arroyo willow
Dichelostemma capitatum	blue dicks	**Salsola tragus*	Russian thistle
Distichlis spicata	saltgrass	*Salvia melifera*	black sage
Encelia californica	California encelia	**Senecio vulgaris*	common groundsel
Ericameria spp.	goldenbush	**Silene gallica*	common catchfly
Eriogonum fasciculatum	California buckwheat	**Sisrynchium irio*	London rocket
**Erodium* spp.	filaree	**Sonchus* sp.	sow-thistle
Filago sp.	filago	**Vulpia myuros*	rattail fescue

ATTACHMENT C

SUMMARY OF SPECIAL-INTEREST SPECIES

Table C-1: Special-Interest Plant Species Potentially Occurring in the Study Area

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence
Chaparral sand-verbena	*Abronia villosa*	US: - CA: SP CNPS: 1B.1	Annual herb. Occurs on sandy soils in chaparral, coastal scrub, and desert dune habitats between 75 and 1,600 m in elevation.	January—September	Not expected. There are no known occurrences in the vicinity of the study area and only marginally suitable habitat is present in the study area.
Aphanisma	*Aphanisma blitoides*	US: - CA: SP CNPS: 1B.2	Annual herb. Occurs on sandy or gravelly soils in coastal bluff scrub, coastal dunes, and coastal scrub habitats between 1 and 300 m in elevation.	February—June	Not expected. There are no known occurrences in the vicinity of the study area and only marginally suitable habitat is present in the study area.
Braunton's milk-vetch	*Astragalus brauntonii*	US: FE CA: SP CNPS: 1B.1	Perennial herb. Found on recent burn sites and disturbed areas; usually sandstone with carbonate layers within chaparral, coastal scrub, and valley and foothill grasslands between 4 and 640 m in elevation.	January—August	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
Coulter's saltbush	*Atriplex coulteri*	US: - CA: SP CNPS: 1B.2	Perennial herb. Found on alkaline or clay soils in coastal dunes, coastal bluff scrub, coastal scrub, and grasslands.	March—October	Not expected. There are no known occurrences in the vicinity of the study area and only marginally suitable habitat is present in the study area.
South coast saltscale	*Atriplex pacifica*	US: - CA: SP CNPS: 1B.2	Annual herb. Found in coastal dunes, coastal bluff scrub, coastal scrub, and playas.	March—October	Not expected. There are no known occurrences in the vicinity of the study area and only marginally suitable habitat is present in the study area.

Table C-1: Special-Interest Plant Species Potentially Occurring in the Study Area

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence
Parish's brittlescale	*Atriplex parishii*	US: - CA: SP CNPS: 1B.1	Annual herb. Occurs on alkaline soils in playas, vernal pools, and chenopod scrub habitats between 25 and 1,900 m in elevation.	June—October	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
Davidson's saltscale	*Atriplex serenana* var. *davidsonii*	US: - CA: SP CNPS: 1B.2	Annual herb. Found on alkaline soils in coastal bluff scrub and coastal scrub.	April—October	Not expected. There are no known occurrences in the vicinity of the study area and only marginally suitable habitat is present in the study area.
Malibu baccharis	*Baccharis malibuensis*	US: - CA: SP CNPS: 1B.1	Perennial deciduous shrub. Occurs in chaparral, cismontane woodland, coastal scrub, and riparian woodland from 150 to 305 m in elevation.	August	Absent. This perennial shrub was not observed during the survey.
Thread-leaved brodiaea	*Brodiaea filifolia*	US: FT CA: CE CNPS: 1B.1	Bulbiferous perennial herb. Occurs primarily in vernal pools, but is also found in chaparral, cismontane woodlands, coastal scrub, playas, and valley and foothill grasslands, usually in clay soils, from 115 to 4,003 ft in elevation.	March—June	Not expected. There are no known occurrences in the vicinity of the study area and only marginally suitable habitat is present in the study area.

Table C-1: Special-Interest Plant Species Potentially Occurring in the Study Area

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence
Catalina mariposa lily	*Calochortus catalinae*	US: - CA: - CNPS: 4.2 NCCP: IS	Perennial bulbiferous herb. Occurs in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland habitats from 15 to 700 m in elevation.	February—June	Low. There are no known occurrences in the vicinity of the study area; however, there is marginally suitable habitat in the study area and the species is widespread and poorly documented.
Intermediate mariposa lily	*Calochortus weedii* var. *intermedius*	US: - CA: SP CNPS: 1B.2 NCCP: CCS	Perennial bulbiferous herb. Occurs in chaparral, coastal scrub, and valley and foothill grassland, often in dry, rocky soils, from 395 to 2,805 ft in elevation.	May—July	Not expected. There are no known occurrences in the vicinity of the study area and only marginally suitable habitat is present in the study area.
Southern tarplant	*Centromadia parryi* ssp. *australis*	US: - CA: SP CNPS: 1B.1	Annual herb. Occurs in vernal pools, margins of marshes and swamps, and vernally mesic valley and foothill grasslands, sometimes with saltgrass on alkaline soils, up to 1,400 ft in elevation.	May—November	Moderate. There are known occurrences in the vicinity of the study area and there is suitable habitat in the study area.
Small-flowered mountain mahogany	*Cercocarpus minutiflorus*	US: - CA: - CNPS: - NCCP: IS	Perennial evergreen shrub. Occurs in coastal sage scrub, chaparral, valleys, and foothills below 3,000 ft in elevation, from the Southern Peninsular Range in San Diego County to northern Baja California.	March—May	Absent. This perennial shrub was not observed during the survey.

Table C-1: Special-Interest Plant Species Potentially Occurring in the Study Area

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence
Orcutt's pincushion	*Chaenactis glabriuscula* var. *orcuttiana*	US: - CA: SP CNPS: 1B.1	Annual herb. Occurs on sandy soils in coastal bluff scrub and coastal dunes habitats between 1 and 100 m in elevation.	January—August	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
San Fernando Valley spineflower	*Chorizanthe parryi* var. *fernandina*	US: - CA: CE CNPS: 1B.2	Annual herb of sandy or gravelly soils in coastal scrub (alluvial fans), Mojavean desert scrub, and pinyon and juniper woodland habitats between 300 and 1,200 m in elevation.	April—June	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
Long-spined spineflower	*Chorizanthe polygonoides* var. *longispina*	US: – CA: SP CNPS: 1B.2	Annual herb of clay soils in chaparral, coastal scrub, meadows and seeps, valley and foothill grassland at 30 to 1,450 m (100 to 4,800 ft) elevation. Occurs in Orange, Riverside, and San Diego Counties.	April—July	Not expected. There are no known occurrences in the vicinity of the study area and there is little suitable habitat present in the study area.
Summer holly	*Comarostaphylis diversifolia* ssp. *diversifolia*	US: – CA: SP CNPS: 1B.2	Perennial evergreen shrub. Occurs in chaparral and cismontane woodland habitats between 30 and 790 m in elevation.	April—June	Absent. This perennial shrub was not observed during the survey.

Table C-1: Special-Interest Plant Species Potentially Occurring in the Study Area

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence
Slender-horned spineflower	*Dodecahema leptoceras*	US: FE CA: CE CNPS: 1B.1	Gravel soils of Temecula arkose deposits in openings in chamise chaparral in the Vail Lake area, or on sandy soils in openings in alluvial scrub (usually late seral stage) in floodplain terraces and benches that receive overbank deposits every 50 to 100 years from generally large washes or rivers; from 200 to 760 m (600 to 2,500 ft) elevation in Los Angeles, Riverside, and San Bernardino Counties.	April—June	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
Santa Monica Mountains dudleya	*Dudleya cymosa* ssp. *ovatifolia*	US: FT CA: SP CNPS: 1B.1 NCCP: IS	Perennial herb found on rocky volcanic or sedimentary soils in chaparral and scrub habitats between 150 and 1,675 m in elevation.	March—June	Not expected. There are no known occurrences in the vicinity of the study area and there is little suitable habitat present in the study area.
Many-stemmed dudleya	*Dudleya multicaulis*	US: - CA: SP CNPS: 1B.2	Perennial herb. Occurs in chaparral, coastal scrub, and valley and foothill grassland usually in heavy, often clayey soils, from 45 to 2,370 ft in elevation.	April—July	Moderate. There are known occurrences in the immediate vicinity of the study area and there is suitable habitat in the study area.
Laguna Beach dudleya	*Dudleya stolonifolia*	US: FT CA: CT CNPS: 1B.1 NCCP: IS	Perennial herb. Occurs on rocky soils in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland habitats between 10 and 260 m in elevation.	May—July	Not expected. There are no known occurrences in the vicinity of the study area and there is little suitable habitat present in the study area.

Table C-1: Special-Interest Plant Species Potentially Occurring in the Study Area

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence
San Diego button-celery	*Eryngium aristulatum* var. *parishii*	US: FE CA: CE CNPS: 1B.1	Annual/perennial herb. Occurs on mesic soils in coastal scrub, vernal pools, and valley and foothill grassland habitats between 20 and 620 m in elevation.	April—June	Not expected. There are no known occurrences in the vicinity of the study area and there is little suitable habitat present in the study area.
Los Angeles sunflower	*Helianthus nuttallii* ssp. *parishii*	US: - CA: SP CNPS: 1A	Perennial rhizomatous herb. Occurs in marshes and swamps.	August—October	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
Tecate cypress	*Hesperocyparis forbesii*	US: - CA: SP CNPS: 1B.1 NCCP: IS	Evergreen tree. Occurs in closed-cone coniferous forest and chaparral, from 835 to 4,920 ft in elevation.	N/A	Absent. This evergreen tree was not observed during the survey.
Mesa horkelia	*Horkelia cuneate* var. *puberula*	US: - CA: SP CNPS: 1B.1	Perennial herb. Occurs on sandy or gravelly soils in chaparral, coastal scrub, and cismontane woodland habitats between 70 and 810 m in elevation.	February—September	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
Decumbent goldenbush	*Isocoma menziesii* var. *decumbens*	US: - CA: SP CNPS: 1B.2	Perennial shrub. Occurs in chaparral and coastal scrub habitats between 10 and 135 m in elevation.	April—November	Absent. This evergreen tree was not observed during the survey.
Coulter's goldfields	*Lasthenia glabrata* ssp. *coulteri*	US: - CA: SP CNPS: 1B.1	Annual herb. Occurs in marshes and swamps, playas, and vernal pools.	February—June	Low. Little suitable habitat present in the study area and there are no known occurrences in the vicinity of the study area.

Table C-1: Special-Interest Plant Species Potentially Occurring in the Study Area

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence
Heart-leaved pitcher sage	*Lepechinia cardiophylla*	US: – CA: SP CNPS: 1B.2 NCCP: IS	Occurs in closed-cone coniferous forest, chaparral, and cismontane woodland; from 550 to 1,370 m (1,800 to 4,500 ft) elevation; in Santa Ana Mountains in Riverside and Orange Counties. Also reported from San Diego County to Baja California.	April—July	Not expected. There are no known occurrences in the vicinity of the study area, suitable habitat is absent in the study area, and the study area is below the known elevation limit for this species.
Intermediate monardella	*Monardella hypoleuca* ssp. *intermedia*	US: - CA: SP CNPS: 1B.3	Perennial rhizomatous herb. Usually found in the understory of chaparral, cismontane woodland, and lower montane coniferous forest habitats between 400 and 1,250 m in elevation.	April—September	Not expected. There are no known occurrences in the vicinity of the study area, suitable habitat is absent in the study area, and the study area is below the known elevation limit for this species.
Gambel's water-cress	*Nasturtium gambelii*	US: FE CA: CT CNPS: 1B.1	Perennial herb. Occurs in marshes and swamps between 5 and 330 m in elevation.	April—October	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
Prostrate vernal pool navarretia	*Navarretia prostrata*	US: - CA: SP CNPS: 1B.1	Annual herb. Occurs on mesic soils in coastal scrub, meadows and seeps, vernal pools, and valley and foothill grassland habitats between 3 and 1,210 m in elevation.	April—July	Low. Little suitable habitat present in the study area and there are no known occurrences in the vicinity of the study area.

Table C-1: Special-Interest Plant Species Potentially Occurring in the Study Area

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence
Coast woolly-heads	*Nemacaulis denudata* var. *denudata*	US: - CA: SP CNPS: 1B.2	Annual herb. Occurs in coastal dunes habitat between 0 and 100 m in elevation.	April—September	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
Chaparral nolina	*Nolina cismontana*	US: - CA: SP CNPS: 1B.2	Evergreen shrub. Occurs in chaparral and coastal scrub on sandstone or gabbro soils, from 420 to 3,825 ft in elevation.	May—July	Absent. This perennial shrub was not observed during the survey.
California beardtongue	*Penstemon californicus*	US: - CA: SP CNPS: 1B.2	Perennial herb. Occurs in chaparral, lower montane coniferous forest, and pinyon and juniper woodland on sandy soils, from 3,800 to 7,500 ft in elevation.	May—August	Not expected. There are no known occurrences in the vicinity of the study area, suitable habitat is absent in the study area, and the study area is below the known elevation limit for this species.
Allen's pentachaeta	*Pentachaeta aurea* ssp. *allenii*	US: - CA: SP CNPS: 1B.1	Annual herb. Occurs in coastal scrub openings and valley and foothill grassland, from 225 to 1,560 ft in elevation.	March—June	Not expected. There are no known occurrences in the vicinity of the study area and the study area is below the known elevation limit for this species.
Nuttall's scrub oak	*Quercus dumosa*	US: - CA: SP CNPS: 1B.1 NCCP: IS	Perennial evergreen shrub. Occurs on sandy and clay loam soils in closed-cone coniferous forest, coastal scrub, and chaparral habitats between 15 and 400 m in elevation.	February—August	Absent. This perennial shrub was not observed during the survey.

Table C-1: Special-Interest Plant Species Potentially Occurring in the Study Area

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence
Coulter's matilija poppy	*Romneya coulteri*	US: - CA: - CNPS: 4.2 NCCP: IS	Perennial rhizomatous herb. Often occurs in burn sites within chaparral and coastal scrub habitats from 20 to 1,200 m in elevation.	March—July	Absent. This perennial herb was not observed during the survey.
Sanford's arrowhead	*Sagittaria sanfordii*	U S: - CA: SP CNPS: 1B.2	Perennial herb. Occurs in marshes and swamps from 0 to 650 m in elevation.	May—November	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
Estuary seablite	*Suaeda esteroa*	U S: - CA: SP CNPS: 1B.2	Perennial herb found in marsh and swamp habitats between 0 and 5 m in elevation.	May—January	Not expected. There are no known occurrences in the vicinity of the study area, suitable habitat is absent in the study area, and the study area is above the known elevation limit for this species.
San Bernardino aster	*Symphyotrichum defoliatum*	U S: - CA: SP CNPS: 1B.2	Perennial rhizomatous herb. Occurs near ditches, springs, and streams in cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, mashes and swamps, and grasslands between 2 and 2,040 m in elevation.	July—November	Not expected. There are no known occurrences in the vicinity of the study area and there is little suitable habitat in the study area.

Table C-1: Special-Interest Plant Species Potentially Occurring in the Study Area

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence
Big-leaved crownbeard	*Verbessina dissita*	US: FT CA: CT CNPS: 1B.1	Perennial herb. Occurs in coastal scrub and chaparral habitats between 45 and 205 m in elevation.	April—July	Not expected. There are no known occurrences in the vicinity of the study area and there is little suitable habitat present in the study area.

Status: Federal Endangered (FE), Federal Threatened (FT), Federal Candidate (FC), Federal Proposed (FP, FPE, FPT), Federal Delisted (FD), California Endangered (CE), California Threatened (CT), California Species of Special Concern (SSC), California Fully Protected Species (CFP), California Special Plant (CSP), California Special Animal (CSA), NCCP Identified Species (IS), NCCP Target Species (TS), NCCP Conditionally Covered Species (CCS)

CNPS Designations:
1B = Rare threatened, or endangered in California and elsewhere
2B = Rare, threatened, or endangered in California, but not elsewhere
1 = Rare in California and elsewhere
2 = Rare in California, but not elsewhere
3 = Not very endangered in California
4 = Plants of Limited Distribution – Watch List

Abbreviation/Acronym Definitions:
CA = California
CNPS = California Native Plant Society
CSS = coastal sage scrub
ft = foot/feet
m = meter/meters
mi = mile/miles
NCCP = Natural Communities Conservation Plan
US = United States

Table C-2: Special-Interest Animal Species and Critical Habitat Potentially Occurring or Known to Occur in the Study Area

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence
INVERTEBRATES				
San Diego fairy shrimp	*Branchinecta sandiegonensis*	US: FE CA: CSA NCCP: CCS	Endemic to vernal pools in Orange and San Diego Counties. Usually appears in late fall, winter, and spring when rains fill the small, shallow, seasonal pools.	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
Quino checkerspot	*Euphidryas editha quino*	US: FE CA: - NCCP: CCS	Annual host plants include dwarf plantain (*Plantago erecta*) or exserted Indian paintbrush (*Castilleja exserta* spp. *exserta*); often found in upland sage scrub/chaparral habitats.	Low. There is suitable habitat present within the study area; however, there are no known occurrences in the vicinity of the study area.
Riverside fairy shrimp	*Streptocephalus woottoni*	US: FE CA: CSA NCCP: CCS	Warm-water pools (i.e., large, deep pools that retain water into the warm season); vernal pools in Orange, Riverside, Los Angeles, Ventura, and San Diego Counties.	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
AMPHIBIANS				
Arroyo toad	*Anaxyrus californicus*	US: FE CA: SSC NCCP: CCS	Found in semiarid regions near washes or intermittent streams. Often found near streams with sandy banks, gravel washes, and riparian vegetation.	Not expected. There are no known occurrences in the vicinity of the study area and there is only marginal suitable habitat in the study area.
Arboreal salamander	*Aneides lugubris*	US: - CA: - NCCP: IS	Occurs primarily in moist sheltered areas within coastal oak woodlands. Also known to inhabit drier habitats including coastal sand dunes. Often associated with sycamores along seasonal streams.	Not expected. Suitable habitat is absent in the study area.
Black-bellied slender salamander	*Batrachoseps nigriventris*	US: - CA: - NCCP: IS	Occurs primarily in oak woodlands but also is found in sheltered moist areas within chaparral, grassland, and oak and pine forest habitats.	Not expected. Suitable habitat is absent in the study area.

Table C-2: Special-Interest Animal Species and Critical Habitat Potentially Occurring or Known to Occur in the Study Area

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence
Western spadefoot	*Spea hammondii*	US: - CA: SSC NCCP: IS	Occurs primarily in grassland and other relatively open habitats. Found in elevations ranging from sea level to 4,500 ft. Requires temporary pools for breeding.	Low. There are no known occurrences in the vicinity of the study area; however, there is marginally suitable habitat in the study area.
REPTILES				
Orange-throated whiptail	*Aspidoscelis hyperythra*	US: - CA: SSC NCCP: TS	Inhabits low-elevation coastal scrub, chaparral, and valley hardwood habitats. Prefers washes and other sandy areas with patches of brush and rocks. Perennial plants are necessary for its major food, termites.	Low. There are no known occurrences in the vicinity of the study area and there is only marginally suitable habitat in the study area.
Coastal whiptail	*Aspidoscelis tigris stejnegeri*	US: - CA: CSA NCCP: IS	Occurs in deserts and semiarid areas with sparse vegetation. Often found in woodland and riparian areas.	Low. There are no known occurrences in the vicinity of the study area and there is only marginally suitable habitat in the study area.
Rosy boa	*Charina trivirgata*	US: - CA: CSA NCCP: IS	Inhabits rock outcrops and rocky shrublands in the southwestern United States and western Mexico.	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
Red-diamond rattlesnake	*Crotalus ruber*	US: - CA: SSC NCCP: IS	Associated with chaparral, woodland, grassland, and desert communities from Los Angeles County to Baja California Sur. Prefers rocky areas with dense vegetation. Needs rodent burrows, cracks in rocks, or surface cover objects for shelter.	Not expected. There are no known occurrences in the vicinity of the study area and there is only marginally suitable habitat in the study area.

Table C-2: Special-Interest Animal Species and Critical Habitat Potentially Occurring or Known to Occur in the Study Area

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence
San Bernardino ringneck snake	*Diadophis punctatus modestus*	US: - CA: CSA NCCP: IS	Prefers moist areas in a variety of habitats, including wet meadows, rocky hillsides, gardens, grasslands, chaparral, mixed coniferous forests, and woodlands.	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
Coast horned lizard	*Phrynosoma blainvillii*	US: - CA: SSC NCCP: IS	Occurs in CSS, open chaparral, riparian woodland, and annual grassland habitats that support adequate prey species.	Not expected. There are no known occurrences in the vicinity of the study area and there is only marginally suitable habitat in the study area.
Coronado Island skink	*Plestiodon skiltonianus interparietalis*	US: - CA: SSC NCCP: IS	Found in grassland, chaparral, and woodland habitats in the coastal ranges of Southern California. Prefers early successional stages or open areas. Found in rocky areas close to streams and on dry hillsides.	Not expected. There are no known occurrences in the vicinity of the study area and there is only marginally suitable habitat in the study area.
BIRDS				
Sharp-shinned hawk	*Accipiter striatus*	US: - CA: SSC NCCP: IS	Inhabits a wide variety of habitats, including dense forests, semiopen savannah woodlands, and urban areas with trees.	Low. There are no known occurrences in the vicinity of the study area and there is only marginally suitable habitat in the study area.
Southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	US: - CA: CSA NCCP: IS	Resident in Southern California CSS and sparse-mixed chaparral. Frequents relatively steep, often rocky hillsides with grass and forb patches.	Low. There are no known occurrences in the vicinity of the study area and only marginally suitable habitat is present in the study area.
Golden eagle (nesting and wintering)	*Aquila chrysaetos*	US: – CA: CFP NCCP: CCS	Grasslands, brushlands, deserts, oak savannas, open coniferous forests, and montane valleys. Nesting primarily in rugged mountainous country. Uncommon resident in Southern California.	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.

Table C-2: Special-Interest Animal Species and Critical Habitat Potentially Occurring or Known to Occur in the Study Area

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence
Rough-legged hawk	*Buteo lagopus*	US: - CA: - NCCP: IS	Winter migrant occurring primarily in open habitats including grasslands, fields, prairies, deserts, and parks.	Low. There is suitable habitat in the study area.
Red-shouldered hawk	*Buteo lineatus*	US: - CA: - NCCP: IS	Found in a variety of habitats. Prefers deciduous woodlands near water sources.	High. This species was observed adjacent to the study area during the survey.
Coastal cactus wren (San Diego and Orange Counties only)	*Campylorhynchus brunneicapillus sandiegensis*	US: - CA: SSC NCCP: TS	Occurs in CSS habitats. Requires tall *Opuntia* cactus for nesting and roosting.	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
Northern harrier (nesting)	*Circus cyaneus*	US: – CA: SSC NCCP: IS	Grassland and marshy habitats in Southern California. Uncommon in open desert and brushlands.	Low. There are no known occurrences in the vicinity of the study area; however, there is suitable habitat in the study area.
Western yellow-billed cuckoo (nesting)	*Coccyzus americanus occidentalis*	US: FT CA: CE	Nests in riparian forests along the broad lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods with understory of blackberry, nettle, or grape.	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
Southwestern willow flycatcher (nesting)	*Empidonax traillii extimus*	US: FE CA: CE NCCP: CCS	Breeds and nests in riparian forest with dense understory. Rare and local in Southern California.	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
Prairie falcon	*Falco mexicanus*	US: - CA: - NCCP: CCS	Associated primarily with perennial grasslands, savannahs, rangeland, agricultural fields, and desert scrub habitats.	Not expected. There are no known occurrences in the vicinity of the study area and only marginally suitable habitat is present in the study area.

Table C-2: Special-Interest Animal Species and Critical Habitat Potentially Occurring or Known to Occur in the Study Area

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence
Peregrine falcon	*Falco peregrinus*	US: FD CA: CFP NCCP: IS	Associated with a variety of open habitats. Often occurs near riparian areas, including coastal estuaries and wetlands. Typically nests on tall cliff faces.	Not expected. There are no known occurrences in the vicinity of the study area and only marginally suitable habitat is present in the study area.
Bald eagle	*Haliaeetus leucocephalus*	US: FD CA: CE	Winter resident of California. Nests in tall trees near water sources, primarily in mountainous regions.	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
Belding's savannah sparrow	*Passerculus sandwichensis beldingi*	US: FT CA: CE	Found in open areas with low vegetation, predominantly in coastal salt marsh and grassland habitats. Associated with dense stands of pickleweed (*Salicornia virginica*).	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
Coastal California gnatcatcher	*Polioptila californica californica*	US: FT CA: SSC NCCP: TS	Obligate permanent resident of CSS below 2,500 ft in elevation in Southern California.	High. There are known occurrences within the vicinity of the study area and suitable habitat is present from the study area.
Bank swallow	*Riparia riparia*	US: - CA: CT	Nests in excavated burrows along river and stream banks, coastal bluffs, sand and gravel pits, and road cuts. Forages over open fields, wetlands, agricultural lands, and other insect-rich habitats.	Not expected. There are no known occurrences in the vicinity of the study area and suitable habitat is absent in the study area.
Least Bell's vireo (nesting)	*Vireo bellii pusillus*	US: FE CA: CE NCCP: CCS	Occurs in moist thickets and riparian areas that are predominantly composed of willow and mule fat.	Not expected. There are known occurrences in the vicinity of the study area; however, suitable habitat is absent in the study area.
MAMMALS				
Coyote	*Canis latrans*	US: - CA: - NCCP: IS	Found throughout most Southern California habitats. Observed frequently within coastal scrub, prairie, and desert habitats.	Present. Signs (i.e., scat) of this species were observed within the study area.

Table C-2: Special-Interest Animal Species and Critical Habitat Potentially Occurring or Known to Occur in the Study Area

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence
San Diego desert woodrat	*Neotoma lepida intermedia*	US: - CA: SSC NCCP: IS	Occurs in CSS and chaparral; most commonly associated with cactus and rocky cliffs and slopes. Found in coastal Southern California from San Diego County to San Luis Obispo County.	Not expected. There are no known occurrences in the vicinity of the study area and only marginally suitable habitat is present in the study area.
Pacific pocket mouse	*Perognathus longimembris pacificus*	US: FE CA: SSC NCCP: CCS	Inhabits friable soils along the narrow coastal plains from the northern Mexican border to Los Angeles County.	Low. There are known occurrences in the vicinity of the study area and marginally suitable habitat is present in the study area.
Gray fox	*Urocyon cinereoargenteus*	US: - CA: - NCCP: IS	Found in forest, woodland, brushland, shrubland, and rocky habitats.	Not expected. Only marginally suitable habitat is present in the study area.

Status: Federal Endangered (FE), Federal Threatened (FT), Federal Candidate (FC), Federal Proposed (FP, FPE, FPT), Federal Delisted (FD), California Endangered (CE), California Threatened (CT), California Species of Special Concern (SSC), California Fully Protected Species (CFP), California Special Animal (CSA), NCCP Identified Species (IS), NCCP Targeted Species (TS), NCCP Conditionally Covered Species (CCS)

Abbreviation Definitions:
CA = California
CSS = coastal sage scrub
ft = feet
m = meters
mi = mile/miles
NCCP = Natural Communities Conservation Plan
US = United States

ATTACHMENT D

NCCP CONSTRUCTION MINIMIZATION MEASURES

NCCP Construction-Related Minimization Measures
NCCP/HCP FEIS/FEIR No. 553, Section 7.5.3

1. To the maximum extent practicable, no grading of CSS habitat that is occupied by nesting gnatcatchers will occur during the breeding season (February 15 through July 15). It is expressly understood that this provision and the remaining provisions of these "construction-related minimization measures," are subject to public health and safety considerations. These considerations include unexpected slope stabilization, erosion control measures and emergency facility repairs. In the event of such public health and safety circumstances, landowners or public agencies/utilities will provide USFWS/CDFG with the maximum practicable notice (or such notice as is specified in the NCCP/HCP) to allow for capture of gnatcatchers, cactus wrens and any other CSS Identified Species that are not otherwise flushed and will carry out the following measures only to the extent as practicable in the context of the public health and safety considerations.

2. Prior to the commencement of grading operations or other activities involving significant soil disturbance, all areas of CSS habitat to be avoided under the provisions of the NCCP/HCP, shall be identified with temporary fencing or other markers clearly visible to construction personnel. Additionally, prior to the commencement of grading operations or other activities involving disturbance of CSS, a survey will be conducted to locate gnatcatchers and cactus wrens within 100 feet of the outer extent of projected soil disturbance activities and the locations of any such species shall be clearly marked and identified on the construction/grading plans.

3. A monitoring biologist, acceptable to USFWS/CDFG will be on site during any clearing of CSS. The landowner or relevant public agency/utility will advise USFWS/CDFG at least seven (7) calendar days (and preferably fourteen (14) calendar days) prior to the clearing of any habitat occupied by Identified Species to allow USFWS/CDFG to work with the monitoring biologist in connection with bird flushing/capture activities. The monitoring biologist will flush Identified Species (avian or other mobile Identified Species) from occupied habitat areas immediately prior to brush-clearing and earth-moving activities. If birds cannot be flushed, they will be captured in mist nets, if feasible, and relocated to areas of the site to be protected or to the NCCP/HCP Reserve System. It will be the responsibility of the monitoring biologist to assure that Identified bird species will not be directly impacted by brush-clearing and earth-moving equipment in a manner that also allows for construction activities on a timely basis.

4. Following the completion of initial grading/earth movement activities, all areas of CSS habitat to be avoided by construction equipment and personnel will be marked with temporary fencing or other appropriate markers clearly visible to construction personnel. No construction access, parking or storage of equipment or materials will be permitted within such marked areas.

5. In areas bordering the NCCP reserve system or Special Linkage/Special Management areas containing significant CSS identified in the NCCP/HCP for protection, vehicle transportation routes between cut-and-fill locations will be restricted to a minimum number during construction consistent with project construction requirements. Waste dirt or rubble will not be deposited on adjacent CSS identified in the NCCP/HCP for protection. Preconstruction meetings involving the monitoring biologist, construction supervisors and equipment operators will be conducted and documented to ensure maximum practicable adherence to these measures.

6. CSS identified in the NCCP/HCP for protection and located within the likely dust drift radius of construction areas shall be periodically sprayed with water to reduce accumulated dust on the leaves as recommended by the monitoring biologist.

APPENDIX C

Special-Interest Plant Survey

LSA

BERKELEY
CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

July 28, 2017

Lindsey Hashimoto
Associate Planner
Office of Environmental Planning and
Sustainability
University of California, Irvine
380 University Tower
Irvine, CA 92697

Subject: Special-Interest Plant Survey Results for University of California, Irvine Parking Lot

Dear Ms. Hashimoto:

This letter serves as a follow-up report to the University of California, Irvine (UCI) Bison Avenue Parking Lot Project (project) Biological Constraints Analysis prepared by LSA and presented to UCI in March 2016. This report addresses the results of focused surveys for special-interest native plant species.

The project area is located east of the intersection of Bison and California Avenues in the City of Irvine, Orange County, California. The site is within the jurisdiction of the Central/Coastal Orange County Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP). The project area is owned by the University of California Regents, a participating landowner. The proposed project is to construct a parking lot within the project area. The project area is in the *Tustin, California* quadrangle of the United States Geological Survey 7.5-minute series topographical map. The site is located within the planning boundaries of the Central/Coastal Orange County NCCP/HCP.

As part of the Biological Constraints Analysis, a literature review and a records search were conducted to identify the existence or potential occurrence of special-interest biological resources (e.g., native plant species) in the vicinity of or within the study area. Federal and State lists of special-interest species were examined. The Biological Constraints Analysis identified two special-interest plant species with a "moderate" probability of occurrence and recommended additional surveys for the two species. The two species are the many-stemmed dudleya (*Dudleya multicaulis*) and the southern tarplant (*Centromadia parryi* ssp. *australis*). Both plants are included on the California Department of Fish and Wildlife's "Special Plants" list and are designated as Rare Plant Rank 1B by the California Native Plant Society. Neither of these two plant species were observed within the study area limits during the surveys conducted for the Biological Constraints Analysis.

ASSESSMENT METHODS

In addition to the botanical survey performed on February 23, 2016 in support of the Biological Constraints Analysis, follow-up surveys were performed on February 28, 2017 and July 19, 2017. Given the heavy amount of rainfall in January 2017 and the subsequent growth of herbaceous species, the timing of the February 28, 2017, survey coincided with the greatest likelihood of observing the many-stemmed dudleya. The July 19, 2017 survey coincided with the greatest likelihood of observing the southern tarplant. The entire site was surveyed on foot.

RESULTS

No many-stemmed dudleya or southern tarplant have been observed during any of the three surveys performed within the project area. It is unlikely that substantial populations of many-stemmed dudleya or southern tarplant occur within the project area.

If you have any questions regarding this report or would like to discuss the project further, please contact me at (949) 553-0666.

Sincerely,

LSA Associates, Inc.

Christopher J. Meloni

Chris Meloni
Senior Biologist

APPENDIX D

Jurisdictional Delineation

JURISDICTIONAL DELINEATION REPORT

UNIVERSITY OF CALIFORNIA, IRVINE PARKING LOT

CITY OF IRVINE, COUNTY OF ORANGE, CALIFORNIA

LSA

June 2017

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TABLES

APPENDICES

LIST OF ABBREVIATIONS AND ACRONYMS

CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
Corps	United States Army Corps of Engineers
CWA	Clean Water Act
FAC	facultative
FACW	facultative wetland
ft	feet/foot
JSA	Jurisdictional Study Area
LRR	Land Resource Region
OBL	obligate wetland
OHWM	ordinary high water mark
Porter-Cologne Act	California Porter-Cologne Water Quality Control Act
RWQCB	Regional Water Quality Control Board
TNW	traditionally navigable water
URP	University Research Park
U.S.	United States
USGS	United States Geological Survey

INTRODUCTION

The project is located in the southwest portion of the University of California, Irvine campus in an undeveloped portion of land north of California Avenue, east of Bison Avenue, and west of Health Sciences Road. The purpose of the project is to construct a parking lot.

SITE DESCRIPTION

The project is located on the United States Geological Survey (USGS) 7.5-minute *Tustin, California*, topographical quadrangle series map. Land uses adjacent to the project include the University of California, Irvine and commercial businesses (see Figure 1—all figures appear in Appendix A)

Elevations in the Jurisdictional Study Area (JSA) range from approximately 100 to 150 feet (ft) above mean sea level. The topography/landscape of the project area gently slopes downhill from south to north and is bordered by California and Bison Avenues and Health Sciences Road. San Diego Creek and the San Joaquin Marsh and Wildlife Sanctuary are located to the north.

The climate is classified as Mediterranean (i.e., arid climate with hot, dry summers and moderately mild, wet winters). The average annual precipitation is 13.5 inches. Although most of the precipitation occurs from November through May, thunderstorms may occur at other times of the year and can cause extremely high precipitation rates. Temperatures typically range between 45 and 85 degrees Fahrenheit.

The project is within the Newport Bay Watershed, which is defined by the Santa Ana Mountain Foothills to the east and the San Joaquin Hills to the west and southwest. The total area of the watershed is 97,294 acres. This watershed originates at the foothills of the Santa Ana Mountains with flows ultimately entering the Pacific Ocean.

The JSA is within the San Diego/Peters Canyon subwatershed. The tributaries within this watershed, including the JSA drainage features, collectively drain into the northeastern end of the Upper Newport Bay, and ultimately the Pacific Ocean, see Figure 2.

REGULATORY BACKGROUND

UNITED STATES ARMY CORPS OF ENGINEERS

The United States Army Corps of Engineers (Corps) regulates discharges of dredged or fill material into waters of the United States (U.S.). These waters include wetland and nonwetland bodies of water that meet specific criteria. Corps regulatory jurisdiction pursuant to Section 404 of the Clean Water Act (CWA) is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct, through a tributary system linking a stream channel with traditionally navigable waters (TNW) used in interstate or foreign commerce, or may be indirect, through a nexus identified in the Corps regulations. The following definition of waters of the U.S. is from 33 Code of Federal Regulations (CFR) 328.3:

> The term waters of the United States means:
>
> (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce…;
>
> (2) All interstate waters including interstate wetlands;
>
> (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams) … the use, degradation or destruction of which could affect interstate or foreign commerce…;
>
> (4) All impoundments of waters otherwise defined as waters of the United States under the definition; and
>
> (5) Tributaries of waters defined in paragraphs (a) (1)–(4) of this section.

The Corps typically regulates as waters of the U.S. any body of water displaying an ordinary high water mark (OHWM). Corps jurisdiction over nontidal waters of the U.S. extends laterally to the OHWM or beyond the OHWM to the limit of any adjacent wetlands, if present (33 CFR 328.4). The OHWM is defined as "… that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area" (33 CFR 328.3). Corps jurisdiction typically extends upstream to the point where the OHWM is no longer perceptible.

As discussed above, Corps regulatory jurisdiction under Section 404 of the CWA is founded on a connection between the water body in question and interstate commerce. This connection may be direct, through a tributary system linking a stream channel with TNW used in interstate or foreign commerce, or may be indirect, through a nexus identified in the Corps regulations. In the past, an indirect nexus could potentially be established if isolated waters provided habitat for migratory birds, even in the absence of a surface connection to navigable water of the U.S. The 1984 rule that enabled the Corps to expand jurisdiction over isolated waters of this type became known as the Migratory Bird Rule. On January 9, 2001, the United States Supreme Court narrowly limited the

Corps jurisdiction of "… nonnavigable, isolated, intrastate …" waters based solely on the use of such waters by migratory birds and, particularly, the use of indirect indicators of interstate commerce (e.g., use by migratory birds that cross state lines) as a basis for jurisdiction. The Supreme Court's ruling derives from the case *Solid Waste Agency of Northern Cook County vs. United States Army Corps of Engineers*, No. 99-1178. The Supreme Court determined that the Corps exceeded its statutory authority by asserting CWA jurisdiction over an abandoned sand and gravel pit in northern Illinois, which provides habitat for migratory birds.

In 2006, the United States Supreme Court further considered the Corps jurisdiction of "… waters of the United States …" in the consolidated cases *Rapanos vs. United States* and *Carabell vs. United States* (126 Supreme Court 2208), collectively referred to as "*Rapanos*." The Supreme Court concluded that wetlands are "waters of the United States" if they significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as navigable. On June 5, 2007, the Corps issued guidance regarding the *Rapanos* decision. After consideration of public comments and agencies' experience, revised guidance was issued on December 2, 2008. This guidance states that the Corps will continue to assert jurisdiction over TNW, wetlands adjacent to TNW, relatively permanent nonnavigable tributaries that have a continuous flow at least seasonally (typically 3 months), and wetlands that directly abut relatively permanent tributaries. The Corps will determine jurisdiction over waters that are nonnavigable tributaries that are not relatively permanent and wetlands adjacent to nonnavigable tributaries that are not relatively permanent only after making a significant nexus finding. The Corps will generally not assert jurisdiction over swales or erosional features, or ditches excavated wholly in and draining only uplands that do not carry a relatively permanent flow of water. However, the Corps does reserve the right to regulate these waters on a case-by-case basis.

Furthermore, the preamble to the Corps regulations at CFR Section 328.3, Definitions, states that the Corps does not generally consider the following waters to be waters of the U.S. The Corps does, however, reserve the right to regulate these waters on a case-by-case basis.

- Nontidal drainage and irrigation ditches excavated on dry land.
- Artificially irrigated areas that would revert to upland if irrigation ceased.
- Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.
- Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons.
- Water-filled depressions created in dry land incidental to construction activity and pits excavated in dry land for purposes of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the U.S.

In some cases, waters found to be isolated and not subject to CWA regulation may be regulated by the Regional Water Quality Control Board (RWQCB) under the State's Porter-Cologne Water Quality Control Act (Porter-Cologne Act), as described later in this section.

WETLANDS

Wetland delineations for Section 404 purposes must be conducted according to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (Regional Supplement) (Corps 2008) and the Corps *1987 Wetland Delineation Manual (*1987 Manual) (Environmental Laboratory 1987). Where there are differences between the two documents, the Regional Supplement takes precedence over the 1987 Manual.

The Corps and the United States Environmental Protection Agency define wetlands as follows:

> Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions.

To be considered a jurisdictional wetland under Section 404, an area must possess three wetland characteristics (three parameters): hydrophytic vegetation, hydric soils, and wetland hydrology. Each characteristic has a specific set of mandatory wetland criteria that must be satisfied for that particular wetland characteristic to be met. Several indicators may be analyzed to determine whether the criteria are satisfied.

Hydrophytic vegetation and hydric soils indicators provide evidence that episodes of inundation have lasted more than a few days or have occurred repeatedly over a period of years, but do not confirm that an episode has occurred recently. Conversely, wetland hydrology indicators provide evidence that an episode of inundation or soil saturation occurred recently, but do not provide evidence that episodes have lasted more than a few days or have occurred repeatedly over a period of years. Because of this, if an area lacks one of the three characteristics under normal conditions, the area is considered nonwetland under most circumstances.

Determination of wetland limits may be complicated by a variety of natural environmental factors or human activities, collectively called "difficult wetland situations," including cyclic periods of drought and flooding or highly ephemeral stream systems. During periods of drought, for example, bank return flows are reduced and water tables are lowered. This results in a corresponding lowering of the OHWM and invasion of upland plant species into wetland areas. Conversely, extreme flooding may create physical evidence of high water well above what might be considered ordinary and may allow the temporary invasion of hydrophytic species into nonwetland areas. In the highly ephemeral systems typical of Southern California, these problems are encountered frequently. In these situations, professional judgment based on years of practical experience along with extensive knowledge of local ecological conditions comes into play in delineating wetlands. The Regional Supplement provides additional guidance for difficult wetland situations.

Hydrophytic Vegetation

Hydrophytic vegetation is plant life that grows and is typically adapted for life in permanently or periodically saturated soils. The hydrophytic vegetation criterion is met if more than 50 percent of the dominant plant species from all strata (tree, shrub, herb, and woody vine layers) are considered hydrophytic. Hydrophytic species are those included on the Corps' most current *National Wetland Plant List* (Lichvar, R.W. et al., 2016). Each species on that list is rated according to a wetland indicator category, as shown in Table A. To be considered hydrophytic, the species must have wetland indicator status (i.e., be rated as Obligate Wetland [OBL], Facultative Wetland [FACW], or Facultative [FAC]).

Table A: Hydrophytic Vegetation

Category	Rating	Probability
Obligate Wetland	OBL	Almost always occur in wetlands (estimated probability > 99 percent)
Facultative Wetland	FACW	Usually occur in wetlands (estimated probability 67–99 percent)
Facultative	FAC	Equally likely to occur in wetlands and nonwetlands (estimated probability 34-66 percent)
Facultative Upland	FACU	Usually occur in nonwetlands (estimated probability 67–99 percent)
Obligate Upland	UPL	Almost always occur in nonwetlands (estimated probability > 99 percent)

The delineation of hydrophytic vegetation is typically based on the most dominant species from each vegetative stratum (strata are considered separately). When more than 50 percent of these dominant species are hydrophytic (i.e., FAC, FACW, or OBL), the vegetation is considered hydrophytic. In particular, the Corps recommends the use of the "50/20" rule (also known as the dominance test) from the Regional Supplement for determining dominant species. Under this method, dominant species are the most abundant species that immediately exceed 50 percent of the total dominance measure for the stratum, plus any additional species composing 20 percent or more of the total dominance measure for the stratum.

In cases where indicators of hydric soil and wetland hydrology are present but the vegetation initially fails the dominance test, the prevalence index must be used. The prevalence index is a weighted average of all plant species within a sampling plot. The prevalence index is particularly useful when communities only have one or two dominants, where species are present at roughly equal coverage, or when strata differ greatly in total plant cover. In addition, Corps guidance provides that morphological adaptations may be considered when determining hydrophytic vegetation when indicators of hydric soil and wetland hydrology are present (Corps 2008). If the plant community passes either the dominance test or prevalence index after reconsideration of the indicator status of any plant species that exhibit morphological adaptations for life in wetlands, then the vegetation is considered hydrophytic.

Hydric Soils

Hydric soils[1] are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.[2] Soils are considered likely to meet the definition of a hydric soil when one or more of the following criteria are met:

1. All Histels except Folistels and Histosols except Folists;

2. Soils that are frequently ponded for a long duration or very long duration[3] during the growing season; or

3. Soils that are frequently flooded for a long duration or very long duration during the growing season.

Hydric soils develop under conditions of saturation and inundation combined with microbial activity in the soil that causes a depletion of oxygen. While saturation may occur at any time of year, microbial activity is limited to the growing season, when soil temperature is above biologic zero (the soil temperature at a depth of 20 inches, below which the growth and function of locally adapted plants are negligible). Biogeochemical processes that occur under anaerobic conditions during the growing season result in the distinctive morphologic characteristics of hydric soils. Based on these criteria, a National List of Hydric Soils was created from the National Soil Information System database and is updated annually.

The Regional Supplement has a number of field indicators that may be used to identify hydric soils. The Natural Resources Conservation Service (Schoeneberger 2002) has also developed a number of field indicators that may demonstrate the presence of hydric soils. These indicators include hydrogen sulfide generation, the accumulation of organic matter, and the reduction, translocation, and/or accumulation of iron and other reducible elements. These processes result in soil characteristics that persist during both wet and dry periods. Separate indicators have been developed for sandy soils and for loamy and clayey soils.

Wetland Hydrology

Under natural conditions, development of hydrophytic vegetation and hydric soils is dependent on a third characteristic: wetland hydrology. Areas with wetland hydrology are those where the presence of water has an overriding influence on vegetation and soil characteristics due to anaerobic and reducing conditions, respectively (1987 Manual). The wetland hydrology parameter is satisfied if the area is seasonally inundated or saturated to the surface for a minimum of 14 consecutive days during the growing season in most years (Regional Supplement 2008).

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1 The hydric soil definition and criteria included in the 1987 Manual are obsolete. Users of the 1987 Manual are directed to the United States Department of Agriculture Natural Resources Conservation Service website for the most current information on hydric soils.

2 Current definition as of 1994 (Federal Register July 13, 1994).

3 A long duration is defined as a single event ranging from 7–30 days. A very long duration is defined as a single event that lasts longer than 30 days.

Hydrology is often the most difficult criterion to measure in the field due to seasonal and annual variations in water availability. Indicators commonly used to identify wetland hydrology include visual observation of inundation or saturation, watermarks, recent sediment deposits, surface scour, and oxidized root channels (rhizospheres) resulting from prolonged anaerobic conditions.

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

The California Department of Fish and Wildlife (CDFW), through provisions of the California Fish and Game Code (Section 1600 et seq.), is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks and at least an intermittent flow of water. The CDFW regulates wetland areas only to the extent that those wetlands are part of a river, stream, or lake as defined by the CDFW.

In obtaining CDFW agreements, the limits of wetlands are not typically determined. This is because the CDFW generally includes, within the jurisdictional limits of streams and lakes, any riparian habitat present. Riparian habitat includes willows, mule fat, and other vegetation typically associated with the banks of a stream or lake shorelines and may not be consistent with Corps definitions. In most situations, wetlands associated with a stream or lake would fall within the limits of riparian habitat. Thus, defining the limits of CDFW jurisdiction based on riparian habitat will automatically include any wetland areas and may include additional areas that do not meet Corps criteria for soils and/or hydrology (e.g., where riparian woodland canopy extends beyond the banks of a stream, away from frequently saturated soils).

REGIONAL WATER QUALITY CONTROL BOARD

The California RWQCB is responsible for the administration of Section 401 of the CWA. Typically, the areas subject to RWQCB jurisdiction coincide with those of the Corps (i.e., waters of the U.S., including any wetlands). The RWQCB may also assert authority over waters of the State under waste discharge requirements pursuant to the Porter-Cologne Act.

METHODOLOGY

The fieldwork for a jurisdictional delineation was conducted by field biologists Lonnie Rodriguez and Gabriella Machal on February 28, 2017. Potential federal and State jurisdictional features located in the JSA were evaluated on foot or surveys using aerial photographs.

Areas of potential jurisdiction were evaluated according to the most current Corps and CDFW regulatory criteria and guidance. The boundaries of the potential jurisdictional areas within the JSA were observed in the field and mapped on an aerial photograph (scale is 1 inch = approximately 250 ft), which shows the potential JSA. Measurements of federal and State jurisdictional areas mapped during the course of the field investigation were determined by a combination of direct measurements taken in the field and measurements taken from the aerial photographs.

Areas supporting plant species that were potentially indicative of wetlands were evaluated according to routine wetland delineation procedures described in the Regional Supplement. Hydrological conditions, including any surface inundation, saturated soils, groundwater levels, and/or other wetland hydrology indicators were also noted. General site characteristics were also noted throughout all potential jurisdictional areas and photographs of potentially jurisdictional areas were taken (Figure 3).

RESULTS

Based on close examination of historical and recent aerial photography and fieldwork, the consultant biologist identified two unnamed ephemeral drainage features occurring in the JSA (i.e., Drainage 1 and Basin 1). Drainage 1 is located on the east section of the property, parallel to Health Sciences Road. Basin 1 is located at the intersection of Bison and California Avenues. Drainage 1 and Basin 2 both have associated concrete v-ditches that were excavated on dry land solely for the purpose of draining upland runoff; neither convey at least a relatively permanent flow of water. Both the drainage and the basin flow into 2-foot diameter concrete inlet pipes, ultimately ending up in underground storm drains which drain into San Diego Creek.

Drainage 1 conveys upland ephemeral flows from south to north; the associated vegetation in the south portion of the drainage is facultative upland and obligate upland (e.g., *Bromus madritensis*, *Dichelostemma capitatum*, *Melilotus officinalis*). The dominant plant species associated with the northern portion of this drainage is mule fat (*Baccharis salicifolia*), a facultative species. Basin 1 collects ephemeral flows from upland storm water runoff, has concrete-lined banks, and has accumulated a 6–8 inch layer of soil. The accumulated soil has resulted in the creation of a substrate conducive to the establishment of facultative vegetation, primarily mule fat.

A portion of Drainage 1 was realigned as part of the UCI 66 kilovolt (kV) Upgrade project (Figure 2). As part of that project, a portion of the original drainage that was located in what is now Health Sciences Road, was permanently impacted. The realigned portion of Drainage 1 (0.005 ac Corps, 0.071 ac CDFW) was excavated on dry land solely for the purpose of draining upland runoff and was not constructed as part of the mitigation for the permanent impacts of the UCI 66 kV Upgrade project.

Likewise, a portion of Basin 1 was constructed as part of the University Research Park (URP) project, and the associated riparian vegetation to the southwest and the ephemeral drainage to the southeast developed as a result of the construction of the basin and the bluff/slope at the corner of Bison Avenue and California Avenue. As part of the URP project, a portion or all of the original drainage, which was located in what are now California Avenue and the constructed bluff at the corner of California Avenue and Bison Avenue, was permanently impacted. The existing Basin 1 area was excavated on dry land solely for the purpose of draining upland runoff and was not constructed as part of the mitigation for the permanent impacts associated with the URP project. The ephemeral drainage to the southeast formed as a result of runoff from the constructed bluff/slope. The associated riparian habitat on the southwestern slope colonized as a result of irrigation and rainfall runoff from the bluff.

In addition to the ephemeral drainage features identified, three concrete lined v-ditches were constructed as part of the storm water runoff system to convey flows into Drainage 1 and Basin 1. These constructed drainage features were evaluated in the field to determine if any would be considered subject to Corps and/or CDFW jurisdiction.

Site-specific conditions and channel measurements were collected and the drainage/basin feature locations were mapped.

UNITED STATES ARMY CORPS OF ENGINEERS JURISDICTION

Waters of the United States

Non-Wetland Waters of the United States

Drainage 1. Drainage 1 is an earthen ephemeral drainage that has been fragmented by urban development, particularly city streets. This drainage conveys flows attributed to seasonal precipitation and urban storm-water runoff. The drainage does exhibit an OHWM and runs parallel to Heath Sciences Road. On-site flows are conveyed from south to north and into a 2 ft diameter concrete pipe. The concrete pipe conveys flows underground to San Diego Creek, which is tributary to Newport Bay, which ultimately conveys flows to the Pacific Ocean (a TNW).

Data were collected at two sample points to determine if the area met all three wetland criteria within the drainage:

The soil at Sample Point 1 is a sandy loam with a matrix hue of 10YR, value 3, and chroma 3; the redox features are concentrations and are 2 percent of the matrix with a color of 7.5YR, value 5, and chroma 8. The value and chroma for this sample point did not meet the conditions for either Sandy Soils or Loamy and Clayey Soils. The soil at this sample point did not meet the hydric soil indicators for Land Resource Region (LRR) C, nor did it meet the conditions for hydrophytic vegetation and wetland hydrology.

The soil at Sample Point 2 is a sandy clay loam with a matrix hue of 10YR, value 3, and chroma 4. While excavating the soil at Sample Point 2, the pit filled with water, and the water level reached a maximum level of four inches below the soil surface. The water table observed at this time of the assessment is attributed to recent rainfall occurring on February 17, 19, and 26, 2017, totaling 2.75 inches of rain for the area. The total amount of precipitation within this small time frame for this region is not considered a normal circumstance. No redox features were observed. Despite inundation at the time of the assessment the soil at this sample point did not meet the hydric soil indicators for Land Resource Region (LRR) C. The site also did not meet the conditions for hydrophytic vegetation. The site did meet the wetland hydrology conditions.

Therefore, given the current conditions of the drainage and the indicators described above, Drainage 1 would be termed a nonwetland water of the U.S.

Basin 1. This southwest section of the JSA previously existed as an ephemeral earthen natural drainage and was recontoured into a catch basin. This basin collects flows attributed to seasonal precipitation and urban and storm water runoff. Flow is conveyed into the basin from v-ditches to the northwest and southwest and an earthen drainage feature to the east. The v-ditches were excavated on dry land to collect and convey upland flows into the basin and do not replace a previously existing earthen drainage. The basin was constructed with concrete banks and an earthen bottom. The concrete banks have a slope of 10 percent or more.

Soil has accumulated on the banks and created a substrate for mule fat, a facultative species, to grow on. As a result of the concrete banks and steep slope, water does not have a long enough retention time within the basin to create hydric soils conditions. An earthen drainage east of the basin conveys flows into the basin. The flows sheet flow through the basin and into the 2 ft diameter pipe inlet. The earthen drainage feature contains an OHWM, and the associated vegetation east of the basin is facultative upland and obligate upland. No sample point was conducted for the basin.

The accumulated soil on the banks only had a depth of seven inches and is subtended by a concrete layer. The vegetation growing on the basin bottom and on the bank walls is a facultative species (mule fat) and the basin, even after the large rain events, did not contain inundation or saturated soils. Based on these conditions, Basin 1 does not meet the conditions for wetlands or for Corps jurisdiction; however, the east drainage feature flows into and through the basin and would be considered to be a nonwetland water of the U.S. (see Figure 2). All the water that is conveyed into the basin flows into an inlet east of Bison Avenue. The inlet conveys flows to San Diego Creek, which is tributary to Newport Bay, which ultimately conveys flows to the Pacific Ocean (a TNW).

The v-ditches (i.e., D1A, B1A, and B1B) associated with Basin 1 and Drainage 1 are manmade, concrete-lined drainage features occurring within the JSA (see Figure 2). These concrete ditches did not displace a previously existing natural drainage channel and were excavated on dry land solely for the purpose of draining upland runoff. They do not convey a relatively permanent flow of water and are not being considered as Corps jurisdictional.

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE JURISDICTION

Jurisdictional Streambeds

Drainage 1

This earthen ephemeral drainage feature is defined by the presence of a channel bed and bank, and it includes associated riparian vegetation at the north end; therefore, CDFW would consider it jurisdictional.

Basin 1

This feature is defined by a bed and bank and includes associated riparian vegetation. The eastern earthen ephemeral drainage feature is also defined by the presence of a channel bed and bank, but it lacks riparian vegetation. CDFW would assert jurisdiction over the drainage feature and basin.

The northwest v-ditch (B1B) associated with the basin would be considered CDFW jurisdiction; it is defined by a channel bed and bank and functions as an ephemeral drainage. The other two v-ditches, B1A and D1A, were constructed for the purpose of conveying upland storm water runoff during and immediately following rain events and lack the functions of a streambed (see Figure 2).

CONCLUSIONS

UNITED STATES ARMY CORPS OF ENGINEERS JURISDICTION

Areas subject to potential Corps jurisdiction pursuant to Section 404 of the CWA include Drainage 1 and the eastern drainage feature that flows into and through Basin 1. These drainages exhibit OHWMs and have connectivity to the Pacific Ocean (a TNW) via San Diego Creek; therefore, they would be considered non-wetland waters of the U.S. Table B provides a breakdown of the drainage/basin acreages within the study area that are subject to potential Corps jurisdiction.

Table B: Total Corps Jurisdictional Areas

Drainage ID	Nonwetland Waters (acres)	Wetlands (acres)	Total Corps Jurisdiction (acres)
Drainage 1	0.02 (0.024)	0	0.02 (0.024)
Basin 1 (east drainage feature)	0.00 (0.004)	0	0.00 (0.004)
Total	**0.03 (0.028)**	**0**	**0.03 (0.028)**[1]

[1] The total Corps jurisdiction would be reduced to 0.02 ac (0.019 ac) if the realigned portion of Drainage 1 and Basin 1 were excluded.
Note: Acres ( ) have been rounded to two significant digits to equal the total.
Corps = United States Army Corps of Engineers

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE JURISDICTION

CDFW jurisdiction in the JSA is associated with Drainage 1, Basin 1, the associated east drainage feature, and v-ditch B1B. These features are defined by a channel bed and bank, and function as ephemeral drainages and would be subject to potential CDFW jurisdiction pursuant to Section 1602 of the California Fish and Game Code. Table C provides a quantitative summary of the CDFW jurisdictional areas within the JSA.

Table C: Quantitative Summary of Jurisdictional Areas Within the Jurisdictional Study Area

Drainage ID	Total CDFW Jurisdiction (acres)
Drainage 1	0.44 (0.438)
Basin 1	0.12 (0.116)
Total	**0.55 (0.554)**[1]

[1] The total CDFW jurisdiction would be reduced to 0.25 ac (0.251 ac) if the realigned portion of Drainage 1 and Basin 1 were excluded.
Note: Acres ( ) have been rounded to two significant digits to equal the total.
CDFW = California Department of Fish and Wildlife

REGIONAL WATER QUALITY CONTROL BOARD JURISDICTION

Because there is no current public guidance on determining RWQCB jurisdictional areas, jurisdiction was determined based on the federal definition of wetlands and other waters of the U.S. as recommended by the September 2004 Workplan. RWQCB jurisdiction was considered coincident with Corps jurisdiction for purposes of Section 401 certification.

DISCLAIMER

The findings and conclusions presented in this report, including the locations and extents of wetlands and other waters subject to regulatory jurisdiction (or lack thereof), represent the professional opinion of the consultant biologists. These findings and conclusions should be considered preliminary until verified by the appropriate regulatory agencies.

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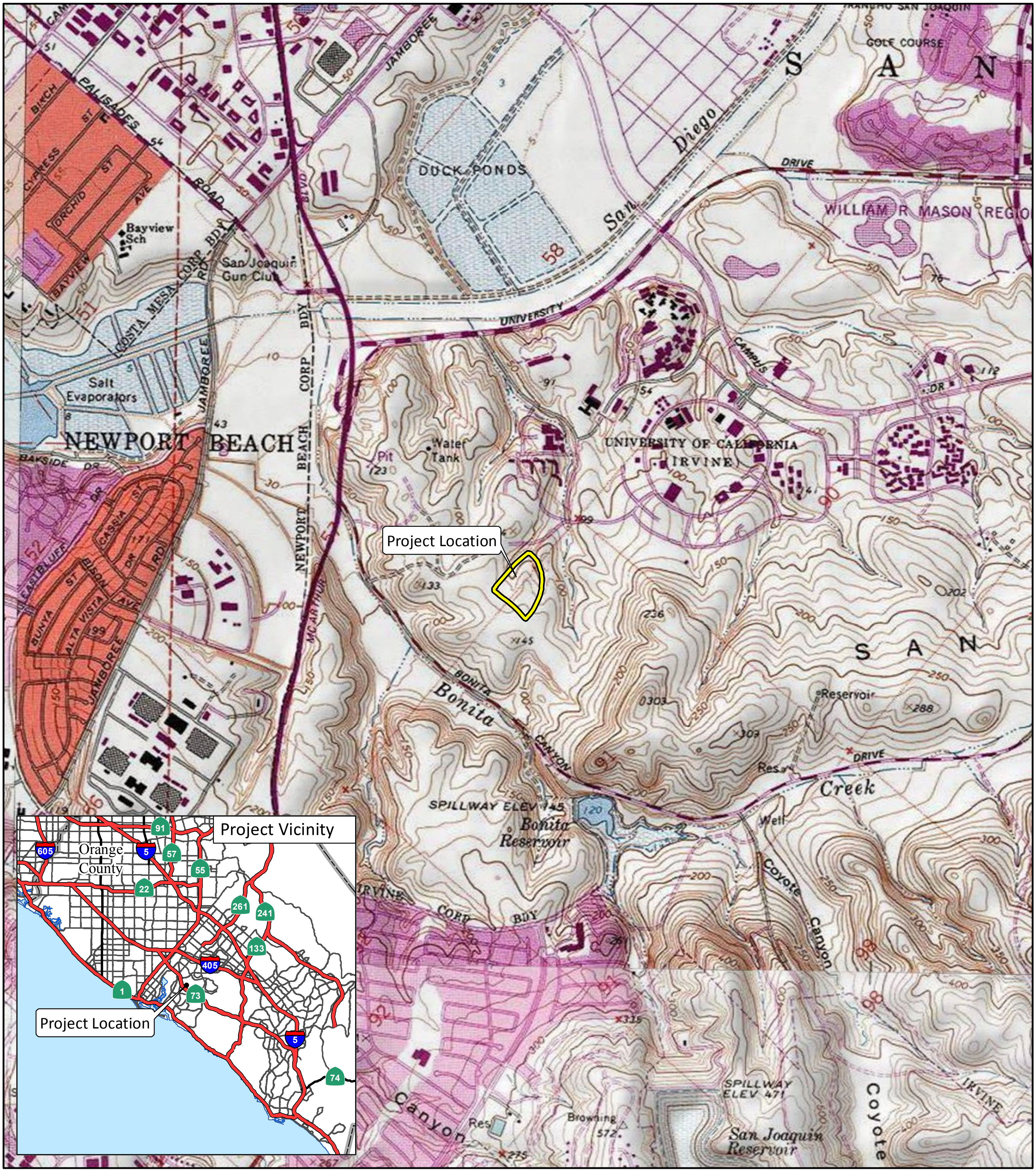
APPENDIX A

FIGURES 1–3



LSA

LEGEND

Project Location

FIGURE 1

N

0 1000 2000
FEET

UCI Parking Study, Site 2

Project Location

SOURCE: USGS 7.5' Quad - Tustin (1981)

I:\UCI1701\GIS\ProjectLocation_USGS.mxd (3/16/2017)

LSA

N

0 35 70
FEET

SOURCE: Bing Maps (2014)

I:\UCI1701\GIS\JD.mxd (6/12/2017)

LEGEND

- Project Location
- Sample Pit
- Non-Jurisdictional Features
- Corps Jurisdiction
- CDFW Jurisdiction

FIGURE 2

UCI Parking Study, Site 2

Jurisdictional Delineation

View looking north, photo taken from the southernmost edge of Drainage 1, (2/28/2017).

View looking south, photo taken at the north end of the Drainage 1, (2/8/2017).

View looking east at sample point 1 and the associated vegetation, (2/28/2017).

Sample point 1 soil profile (2/28/2017).

LSA

FIGURE 3
(Page 1 of 3)

UCI Parking Structure
Representative Site Photos

View looking west at sample point 2 and the associated vegetation, (2/28/2017).

Sample point 2 soil profile (2/28/2017).

Sample point 2, inundated with water (2/28/2017).

LSA

FIGURE 3
(Page 2 of 3)

UCI Parking Structure
Representative Site Photos

View looking southwest at Basin 1 and V-ditch B1B, (2/28/2017).

View looking west at the eastern earthen drainage that conveys flows into Basin 1, (2/28/207).

LSA

FIGURE 3
(Page 3 of 3)

UCI Parking Structure
Representative Site Photos

APPENDIX B

DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Bison Surface Parking Lot City/County: Irvine/Orange Sampling Date: 02/08/17
Applicant/Owner: University of California, Irvine State: CA Sampling Point: 1
Investigator(s): Lonnie Rodriguez, Gabriella Machal Section, Township, Range: Land Grant: San Joaquin
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR): C: Arid West Region Lat: 33.641578 Long: -117.851013 Datum: NAD83
Soil Map Unit Name: Myford sandy loam, 9 to 30 percent slopes, eroded; myford sandy loam, 2 to 9 percent slopes, eroded NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No X (If no, explain in Remarks.)
Are Vegetation NO, Soil NO, or Hydrology NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation NO, Soil NO, or Hydrology NO naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks: The soil is moist from recent rains. The area has recieved up to 2.75 inches of rain within a week and a half.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10'x10')			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10'x10')			
1. Baccharis salicifolia	50	Y	FAC
2. Baccharis pilularis	10	Y	UPL
3. Salsola tragus	10	Y	FACU
4.			
5.			
	70 = Total Cover		
Herb Stratum (Plot size: 10'x10')			
1. Hirschfeldia incana	35	Y	UPL
2. Medicago polymorpha	8	N	FACU
3. Atriplex semibaccata	1	N	FAC
4. Rumex crispus	<1	N	FAC
5. Sonchus asper	<1	N	FAC
6.			
7.			
8.			
	46 = Total Cover		
Woody Vine Stratum (Plot size: 10'x10')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	53	x 3 = 159
FACU species	11	x 4 = 44
UPL species	45	x 5 = 225
Column Totals:	109 (A)	428 (B)

Prevalence Index = B/A = 3.93

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: Site dominated by B. salicifolia and H. incana.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16"	10YR 3/3	100	7.5YR 5/8	2	C	M	Sandy loam	Live roots continuous
16" Bottom of Pit								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): None

Hydric Soil Present? Yes ___ No X

Remarks: Chunk of asphalt found in the bottom 4 inches. Soil is not saturated. Melilotus officinalis and Hirschfeldia incana are on the surface of the soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Drainage patterns are associated with sheet flow from the western slope.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Bison Surface Parking Lot City/County: Irvine/Orange Sampling Date: 02/08/17

Applicant/Owner: University of California, Irvine State: CA Sampling Point: 2

Investigator(s): Lonnie Rodriguez, Gabriella Machal Section, Township, Range: Land Grant: San Joaquin

Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): <1

Subregion (LRR): C: Arid West Region Lat: 33.641324 Long: -117.850887 Datum: NAD83

Soil Map Unit Name: ~~Myford sandy loam, 2 to 9 percent slopes, eroded~~ Myford sandy loam, 9 to 30 percent slopes, eroded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation NO, Soil NO, or Hydrology NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation NO, Soil NO, or Hydrology NO naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?		X
Wetland Hydrology Present?	X	

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks: The area has recieved up to 2.75 inches of rain within a week and a half.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10'x10')			
1.			
2.			
3.			
4.			
= Total Cover	0		
Sapling/Shrub Stratum (Plot size: 10'x10')			
1. Baccharis salicifolia	40	Y	FAC
2. Heterotheca grandiflora	<1	N	UPL
3.			
4.			
5.			
= Total Cover	41		
Herb Stratum (Plot size: 10'x10')			
1. Urtica urens	40	Y	UPL
2. Hirschfeldia incana	25	Y	UPL
3. Bromus madritensis ssp. madritensis	8	N	UPL
4. Rumex crispus	5	N	FAC
5. Centaurea melitensis	2	N	UPL
6. Medicago polymorpha	1	N	FACU
7.			
8.			
= Total Cover	81		
Woody Vine Stratum (Plot size: 10'x10')			
1.			
2.			
= Total Cover	0		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	45	x 3 = 135
FACU species	1	x 4 = 4
UPL species	76	x 5 = 380
Column Totals:	122 (A)	519 (B)

Prevalence Index = B/A = 4.25

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: Site dominated by B. salicifolia and stinging nettle ground cover.

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16"	10YR 3/4	100					Sandy clay loam	Live roots
16" Bottom of Pit								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): None

Hydric Soil Present? Yes ___ No X

Remarks:

After the soil was left to dry and the soil was broken up no redox features were observed on the peds

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes X No ___ Depth (inches): 4" from top

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 4" from top

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Water table present from recent rains.

APPENDIX E

Greenhouse Gas Assessment

Greenhouse Gas Assessment
UCI Bison Parking Lot Project

CONSULTANT:

Michael Baker International

Michael Baker

INTERNATIONAL

GREENHOUSE GAS ASSESSMENT

for the

UCI Bison Parking Lot Project

University of California, Irvine

Consultant:

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949.330.4104

May 31, 2017

JN 159188

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SYMBOLS, ABBREVIATIONS, AND ACRONYMS

AB	Assembly Bill
AQMP	Air Quality Management Plan
Basin	South Coast Air Basin
BAU	business as usual
CAAQS	California Ambient Air Quality Standards
CAFE	corporate average fleet fuel economy
CalGreen	California Green Building Standards
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CH_4	Methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2eq	carbon dioxide equivalent
EAP	Energy Action Plan
EECAP	energy efficiency climate action plans
EPA	U.S. Environmental Protection Agency
FCAA	Federal Clean Air Act
GHG	greenhouse gas
GSF	gross square foot
GWP	Global Warming Potential
H_2O	water vapor
HCFCs	Hydrochlorofluorocarbons
HFCs	Hydrofluorocarbons
hp	horsepower
HPLV	high-pressure-low-volume
HVAC	heating, ventilation, and air conditioning
I-4	Environmental Justice Enhancement Initiative
IPCC	International Panel for Climate Change
lbs	pounds
LEED	Leadership in Engineering and Environmental Design
LOS	level of service
LSTs	Localized Significance Thresholds
Metro	Los Angeles County Metropolitan Transportation Authority
MMT	million metric tons
mpg	miles per gallon
MPO	metropolitan planning organization
$MTCO_2eq$	metric tons of carbon dioxide equivalents
MU-T	Mixed-Use Transit
N_2O	nitrous oxide

NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
OAL	Office of Administrative Law
O_3	ozone
OPR	Office of Planning and Research
PFCs	Perfluorocarbons
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppm	parts per million
PST	Pacific Standard Time
RCP	Regional Comprehensive Plan
RH	relative humidity
ROG	Reactive Organic Gasses
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCS	Sustainable Community Strategy
SF_6	Sulfur hexafluoride
SGVCOG	San Gabriel Valley Council of Governments
SGVEWP	San Gabriel Valley Energy Wise Partnership
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_x	sulfur oxides
SRA	Source receptor Area
UNFCCC	United Nations Framework Convention on Climate Change
$\mu g/m^3$	micrograms per cubic meter
UV-B	ultraviolet B rays
VMT	vehicle miles traveled
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

The purpose of this Greenhouse Gas Assessment is to evaluate potential short- and long-term greenhouse gas (GHG) impacts resulting from implementation of the proposed Bison Parking Lot Project ("project" or "proposed project") on the University of California, Irvine (UCI) campus.

The proposed project would construct an approximately 330,000-square-foot surface parking lot to accommodate up to 1,000 spaces on a 7.56-acre vacant site bordered by Bison Avenue, Health Sciences Road, and California Avenue. The project scope would include vegetation clearing, grading, asphalt paving, construction of new sidewalks and road access, installation of lighting to allow 24-hour use and infrastructure for Electric Vehicle (EV) charging, landscaping, and irrigation. The lot would be constructed to allow for the future installation of an information booth and security access gate. Vehicular access to the site would be provided via two driveways on Health Sciences Road. The first driveway would be considered a full-access driveway and would be located approximately 450 feet north of California Avenue, opposite of an existing driveway that serves a gated area. The second driveway would be categorized as a right-turn-in/right-turn-out only driveway and would be located approximately 410 feet south of Bison Avenue.

Greenhouse Gas Impacts. The proposed project would result in less than significant GHG impacts. Additionally, the project would not conflict with a plan, policy, or regulation adopted for the purposes of reducing GHG emissions.

1.0 INTRODUCTION

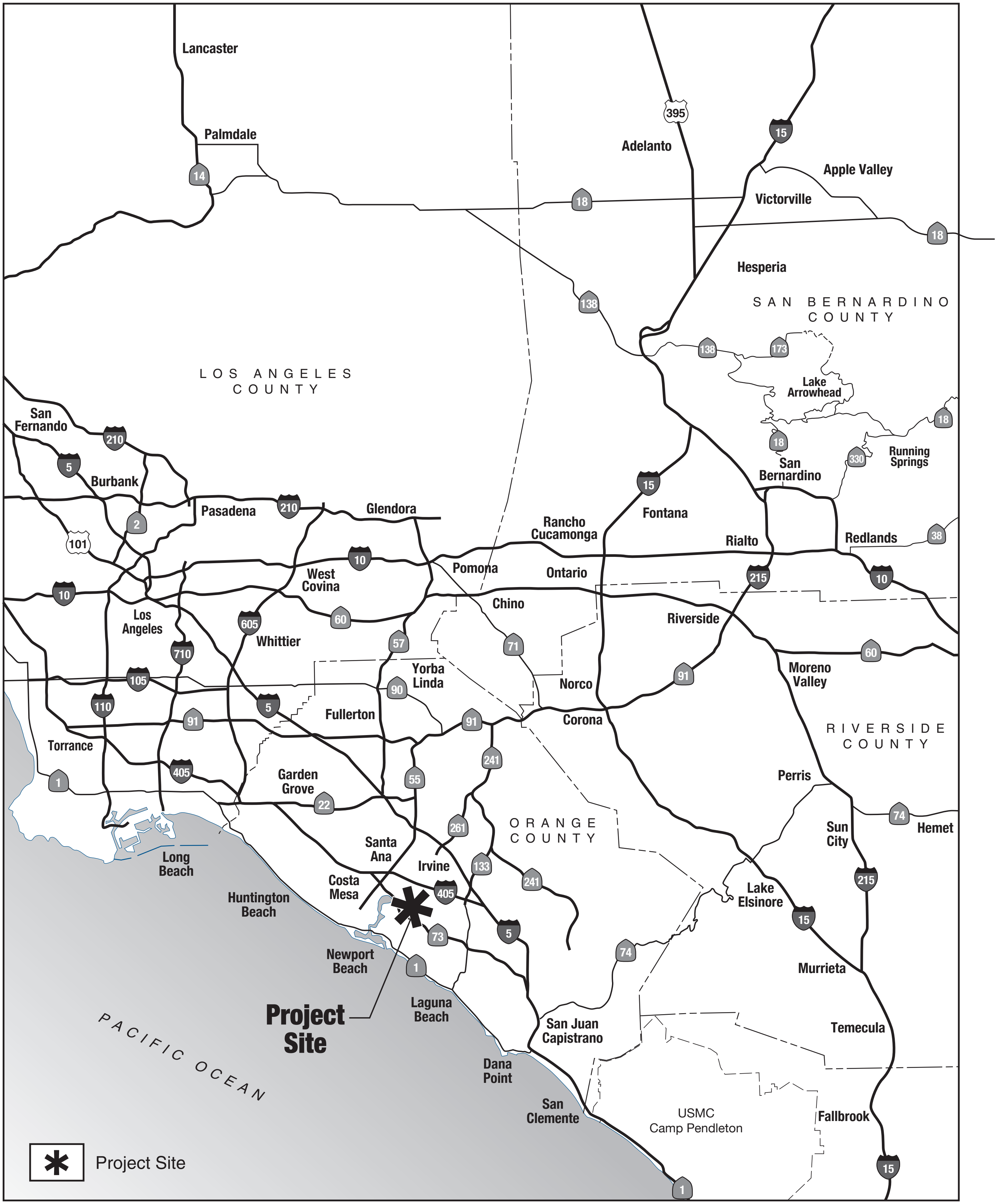
The purpose of this Greenhouse Gas Assessment is to evaluate potential short- and long-term air quality impacts resulting from implementation of the proposed Bison Parking Lot Project ("project" or "proposed project") on the University of California, Irvine (UCI) campus.

1.1 PROJECT LOCATION

The project site is located 2.5 miles south of Interstate 405 (I-405), and 0.3 miles east of State Route 73 (SR-73); refer to Exhibit 1, *Regional Vicinity*. Locally, the project is located in the area generally bounded by Bison Avenue, California Avenue, and Health Sciences Road, on the UCI campus; refer to Exhibit 2, *Site Vicinity*.

1.2 PROJECT DESCRIPTION

The proposed project would construct an approximately 330,000-square-foot surface parking lot to accommodate up to 1,000 spaces on a 7.56-acre vacant site bordered by Bison Avenue, Health Sciences Road, and California Avenue. The project scope would include vegetation clearing, grading, asphalt paving, construction of new sidewalks and road access, installation of lighting to allow 24-hour use and infrastructure for Electric Vehicle (EV) charging, landscaping, and irrigation. The lot would be constructed to allow for the future installation of an information booth and security access gate. Vehicular access to the site would be provided via two driveways on Health Sciences Road. The first driveway would be considered a full-access driveway and would be located approximately 450 feet north of California Avenue, opposite of an existing driveway that serves a gated area. The second driveway would be categorized as a right-turn-in/right-turn-out only driveway and would be located approximately 410 feet south of Bison Avenue; refer to Exhibit 3, *Conceptual Site Plan*.



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UCI BISON PARKING LOT PROJECT
GREENHOUSE GAS ASSESSMENT

Regional Vicinity

Exhibit 1

Source: Aerial - Google Earth Pro, April 2017

Michael Baker
INTERNATIONAL

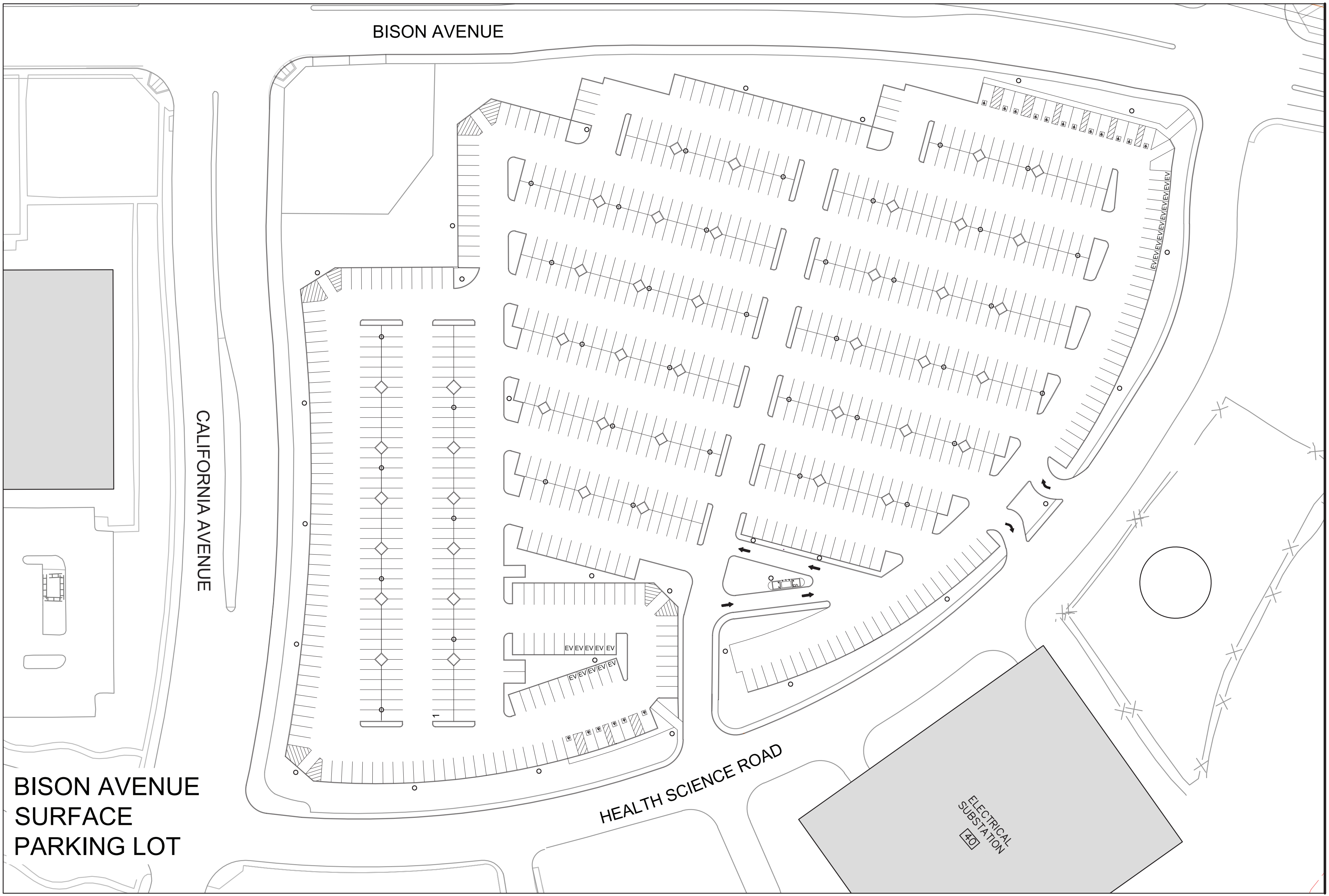
not to scale

04/27/17 JN 159188 mas

UCI BISON PARKING LOT PROJECT • GREENHOUSE GAS ASSESSMENT

Site Vicinity

Exhibit 2



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UCI BISON PARKING LOT PROJECT • GREENHOUSE GAS ASSESSMENT

Conceptual Site Plan

Exhibit 3

2.0 ENVIRONMENTAL SETTING

The California Air Resources Board (CARB) divides the State into 15 air basins that share similar meteorological and topographical features. The project site lies within the northwestern portion of the South Coast Air Basin (Basin). The Basin is a 6,600-square mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The Basin's terrain and geographical location (i.e., a coastal plain with connecting broad valleys and low hills) determine its distinctive climate.

The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. The climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of pollutants throughout the Basin.

CLIMATE

The average annual temperature varies little throughout the Basin, averaging 75 degrees Fahrenheit (°F). However, with a less-pronounced oceanic influence, the eastern inland portions of the Basin show greater variability in annual minimum and maximum temperatures. All portions of the Basin have had recorded temperatures over 100°F in recent years.

Although the Basin has a semi-arid climate, the air near the surface is moist due to the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the Basin by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent, and low stratus clouds, occasionally referred to as "high fog," are a characteristic climate feature. Annual average relative humidity is 70 percent at the coast and 57 percent in the eastern part of the Basin. Precipitation in the Basin is typically nine to 14 inches annually and is rarely in the form of snow or hail due to typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the Basin.

The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above sea level, the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet, the terrain prevents the pollutants from entering the upper atmosphere, resulting in a settlement in the foothill communities. Below 1,200 feet, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise than during the day. Mixing heights for inversions are lower in the summer and more persistent, being partly responsible for the high levels of ozone (O_3) observed during summer months in the

Basin. Smog in southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods of time, allowing them to form secondary pollutants by reacting with sunlight. The Basin has a limited ability to disperse these pollutants due to typically low wind speeds.

The area in which the project is located offers clear skies and sunshine, yet is still susceptible to air inversions. These inversions trap a layer of stagnant air near the ground, where it is then further loaded with pollutants. These inversions cause haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces, and other sources.

3.0 STATE AND FEDERAL GREENHOUSE GAS STANDARDS

3.1 GLOBAL CLIMATE CHANGE GASES

The natural process through which heat is retained in the troposphere is called the "greenhouse effect."[1] The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long wave radiation; and GHGs in the upper atmosphere absorb this long wave radiation and emit this long wave radiation into space and toward the Earth. This "trapping" of the long wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect.

The most abundant GHGs are water vapor and carbon dioxide (CO_2). Many other trace gases have greater ability to absorb and re-radiate long wave radiation; however, these gases are not as plentiful. For this reason, and to gauge the potency of GHGs, scientists have established a Global Warming Potential (GWP) for each GHG based on its ability to absorb and re-radiate long wave radiation.

GHGs include, but are not limited to, the following:[2]

- _Water Vapor (H_2O)_. Although water vapor has not received the scrutiny of other GHGs, it is the primary contributor to the greenhouse effect. Natural processes, such as evaporation from oceans and rivers, and transpiration from plants, contribute 90 percent and 10 percent of the water vapor in our atmosphere, respectively.

  The primary human related source of water vapor comes from fuel combustion in motor vehicles; however, this is not believed to contribute a significant amount (less than one percent) to atmospheric concentrations of water vapor. The Intergovernmental Panel on Climate Change (IPCC) has not determined a GWP for water vapor.

- _Carbon Dioxide (CO_2)_. Carbon Dioxide is primarily generated by fossil fuel combustion in stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources in the past 250 years, the concentration of CO_2 in the atmosphere has increased 40 percent.[3] Carbon dioxide is the most widely emitted GHG and is the reference gas (GWP of 1) for determining GWPs for other GHGs.

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[1] The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth's surface to 10 to 12 kilometers.

[2] All Global Warming Potentials are given as 100-year Global Warming Potential. Unless noted otherwise, all Global Warming Potentials were obtained from the IPCC. (Intergovernmental Panel on Climate Change, *Climate Change, Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007*).

[3] U.S. Environmental Protection Agency, *Draft Inventory of United States Greenhouse Gas Emissions and Sinks 1990 to 2015*, February 2017.

- *Methane (CH_4)*. Methane is emitted from biogenic sources, incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. In the United States, the top three sources of methane are landfills, natural gas systems, and enteric fermentation (the digestive process in animals with a rumen, typically cattle, causing methane gas). Methane is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The GWP of methane is 25.

- *Nitrous Oxide (N_2O)*. Nitrous oxide is produced by both natural and human related sources. Primary human related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production (for the industrial production of nylon), and nitric acid production (for rocket fuel, woodworking, and as a chemical reagent). The GWP of nitrous oxide is 298.

- *Hydrofluorocarbons (HFCs)*. HFCs are typically used as refrigerants, aerosol propellants, solvents and fire retardants. The major emissions source of HFCs is from their use as refrigerants in air conditioning systems in both vehicles and buildings. HFCs were developed as a replacement for chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs). The GWP of HFCs range from 124 for HFC-152a to 14,800 for HFC-23.[4]

- *Perfluorocarbons (PFCs)*. PFCs are compounds produced as a by-product of various industrial processes associated with aluminum production and the manufacturing of semiconductors. Like HFCs, PFCs generally have long atmospheric lifetimes and high Global Warming Potentials of approximately 6,500 and 9,200.[5]

- *Sulfur hexafluoride (SF_6)*. SF_6 is a colorless, odorless, nontoxic, nonflammable gas. Sulfur hexafluoride is the most potent GHG that has been evaluated by the IPCC with a Global Warming Potential of 22,800.[6] However, its global warming contribution is not as high as the Global Warming Potential would indicate due to its low mixing ratio compared to carbon dioxide (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm], respectively).[7]

In addition to the six major GHGs discussed above (excluding water vapor), many other compounds have the potential to contribute to the greenhouse effect. Some of these substances

[4] U.S. Environmental Protection Agency, *Greenhouse Gas Emissions*, September 9, 2013. https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions, accessed on April 12, 2017.

[5] Ibid.

[6] Ibid.

[7] Ibid.

were previously identified as stratospheric ozone (O_3) depletors; therefore, their gradual phase out is currently in effect. The following is a listing of these compounds:

- *Hydrochlorofluorocarbons (HCFCs)*. HCFCs are solvents, similar in use and chemical composition to CFCs. The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, all developed countries that adhere to the Montreal Protocol are subject to a consumption cap and gradual phase out of HCFCs. The United States is scheduled to achieve a 100 percent reduction to the cap by 2030. The GWPs of HCFCs range from 93 for HCFC-123 to 2,000 for HCFC-142b.[8]

- *1,1,1 trichloroethane*. 1,1,1 trichloroethane or methyl chloroform is a solvent and degreasing agent commonly used by manufacturers. The GWP of methyl chloroform is 110 times that of CO_2.[9]

- *Chlorofluorocarbons (CFCs)*. CFCs are used as refrigerants, cleaning solvents, and aerosols spray propellants. CFCs were also part of the EPA's Final Rule (57 FR 3374) for the phase out of O_3 depleting substances. Currently, CFCs have been replaced by HFCs in cooling systems and a variety of alternatives for cleaning solvents. Nevertheless, CFCs remain suspended in the atmosphere contributing to the greenhouse effect. CFCs are potent GHGs with GWPs ranging from 4,600 for CFC 11 to 14,000 for CFC 13.[10]

[8] U.S. Environmental Protection Agency, *Stratospheric Ozone Protection and Climate Change*, dated August 19, 2010, http://www.epa.gov/ozone/climate.html, accessed on April 12, 2017.

[9] Ibid.

[10] U.S. Environmental Protection Agency, *Class I Ozone Depleting Substances*, August 19, 2010. http://www.epa.gov/ozone/ods.html, accessed on April 12, 2017.

4.0 REGULATORY SETTING

4.1 GLOBAL CLIMATE CHANGE REGULATORY PROGRAMS

FEDERAL

The Federal government is extensively engaged in international climate change activities in areas such as science, mitigation, and environmental monitoring. The EPA actively participates in multilateral and bilateral activities by establishing partnerships and providing leadership and technical expertise. Multilaterally, the United States is a strong supporter of activities under the United Nations Framework Convention on Climate Change (UNFCCC) and the IPCC.

In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess the scientific, technical, and socioeconomic information relevant to understanding the scientific basis of human-induced climate change, its potential impacts, and options for adaptation and mitigation. The most recent reports of the IPCC have emphasized the scientific consensus around the evidence that real and measurable changes to the climate are occurring, that they are caused by human activity, and that significant adverse impacts on the environment, the economy, and human health and welfare are unavoidable.

In December 2007, Congress passed the first increase in corporate average fleet fuel economy (CAFE) standards. The new CAFE standards represent an increase to 35 miles per gallon (mpg) by 2020. In March 2009, the Obama Administration announced that for the 2011 model year, the standard for cars and light trucks will be 27.3 mpg, the standard for cars will be 30.2 mpg; and standard for trucks would be 24.1 mpg. Additionally, in May 2009 President Barack Obama announced plans for a national fuel-economy and GHG emissions standard that would significantly increase mileage requirements for cars and trucks by 2016. The new requirements represent an average standard of 39 mpg for cars and 30 mpg for trucks by 2016.

Currently, the EPA is moving forward with two key climate change regulatory proposals, one to establish a mandatory GHG reporting system. Under the Federal Clean Air Act (FCAA), the EPA is now obligated to issue rules regulating global warming pollution from all major sources. In April 2009, the EPA concluded that GHGs are a danger to public health and welfare, establishing the basis for GHG regulation. However, as of the date of this study there are no Federal regulations or policies regarding GHG emissions applicable to the proposed project.

STATE

Various statewide and local initiatives to reduce California's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is occurring, and that there is a real potential for severe adverse environmental, social, and economic effects in the long term. Every nation emits GHGs and as a result makes an incremental cumulative contribution to global climate change; therefore, global cooperation will be required to reduce the rate of GHG emissions enough to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

Executive Order S-1-07. Executive Order S-1-07 proclaims that the transportation sector is the main source of GHG emissions in California, generating more than 40 percent of statewide emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in California by at least ten percent by 2020. This order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

Executive Order S-3-05. Executive Order S-3-05 set forth a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

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

The Executive Order directed the secretary of the California Environmental Protection Agency (Cal/EPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The secretary will also submit biannual reports to the governor and California Legislature describing the progress made toward the emissions targets, the impacts of global climate change on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the executive order, the secretary of Cal/EPA created the California Climate Action Team (CAT), made up of members from various State agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of California businesses, local governments, and communities and through State incentive and regulatory programs.

Executive Order B-30-15. Executive Order B-30-15 added the interim target to reduce statewide GHG emissions 40 percent below 1990 levels by 2030.

Executive Order S-13-08. Executive Order S-13-08 seeks to enhance the State's management of climate impacts including sea level rise, increased temperatures, shifting precipitation, and extreme weather events by facilitating the development of State's first climate adaptation strategy. This will result in consistent guidance from experts on how to address climate change impacts in the State of California.

Executive Order S-14-08. Executive Order S-14-08 expands the State's Renewable Energy Standard to 33 percent renewable power by 2020. Additionally, Executive Order S-21-09 (signed on September 15, 2009) directs CARB to adopt regulations requiring 33 percent of electricity sold in the State come from renewable energy by 2020. CARB adopted the "Renewable Electricity

Standard" on September 23, 2010, which requires 33 percent renewable energy by 2020 for most publicly owned electricity retailers.

Executive Order S-20-04. Executive Order S-20-04, the California Green Building Initiative, (signed into law on December 14, 2004), establishes a goal of reducing energy use in State-owned buildings by 20 percent from a 2003 baseline by 2015. It also encourages the private commercial sector to set the same goal. The initiative places the California Energy Commission (CEC) in charge of developing a building efficiency benchmarking system, commissioning and retro-commissioning (commissioning for existing commercial buildings) guidelines, and developing and refining building energy efficiency standards under Title 24 to meet this goal.

Executive Order S-21-09. Executive Order S-21-09, 33 percent Renewable Energy for California, directs CARB to adopt regulations to increase California's Renewable Portfolio Standard (RPS) to 33 percent by 2020. This builds upon SB 1078 (2002) which established the California RPS program, requiring 20 percent renewable energy by 2017, and SB 107 (2006) which advanced the 20 percent deadline to 2010, a goal which was expanded to 33 percent by 2020 in the 2005 Energy Action Plan II.

Assembly Bill 32 (California Global Warming Solutions Act of 2006). California passed the California Global Warming Solutions Act of 2006 (AB 32; *California Health and Safety Code* Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

Assembly Bill 1493. AB 1493 (also known as the Pavley Bill) requires that CARB develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHG emitted by passenger vehicles and light-duty trucks and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State."

To meet the requirements of AB 1493, CARB approved amendments to the California Code of Regulations (CCR) in 2004 by adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 and adoption of 13 CCR Section 1961.1 require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty weight classes for passenger vehicles (i.e., any medium-duty vehicle with a gross vehicle weight rating less than 10,000 pounds that is designed primarily to transport people), beginning with the 2009 model year. Emissions limits are reduced further in each model year through 2016. When fully phased in, the near-term standards will result in a reduction of about 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term standards will result in a reduction of about 30 percent.

Assembly Bill 3018. AB 3018 established the Green Collar Jobs Council (GCJC) under the California Workforce Investment Board (CWIB). The GCJC will develop a comprehensive approach to address California's emerging workforce needs associated with the emerging green economy. This bill will ignite the development of job training programs in the clean and green technology sectors.

Senate Bill 97. SB 97, signed in August 2007 (Chapter 185, Statutes of 2007; PRC Sections 21083.05 and 21097), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directs the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions (or the effects of GHG emissions), as required by CEQA.

OPR published a technical advisory recommending that CEQA lead agencies make a good-faith effort to estimate the quantity of GHG emissions that would be generated by a proposed project. Specifically, based on available information, CEQA lead agencies should estimate the emissions associated with project-related vehicular traffic, energy consumption, water usage, and construction activities to determine whether project-level or cumulative impacts could occur, and should mitigate the impacts where feasible. OPR requested CARB technical staff to recommend a method for setting CEQA thresholds of significance as described in CEQA Guidelines Section 15064.7 that will encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the State.

The Natural Resources Agency adopted the CEQA Guidelines Amendments prepared by OPR, as directed by SB 97. On February 16, 2010, the Office of Administration Law approved the CEQA Guidelines Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The CEQA Guidelines Amendments became effective on March 18, 2010.

Senate Bill 375. SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will prescribe land use allocation in that MPOs regional transportation plan. CARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects may not be eligible for funding programmed after January 1, 2012.

Senate Bills 1078 and 107. SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010.

Senate Bill 1368. SB 1368 (Chapter 598, Statutes of 2006) is the companion bill of AB 32 and was signed into law in September 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February 1, 2007. SB 1368 also required the California Energy Commission (CEC) to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards could not exceed the GHG emissions rate from a baseload combined-cycle, natural gas fired plant. Furthermore, the legislation states that all electricity provided to California, including imported electricity, must be generated by plants that meet the standards set by CPUC and CEC.

Senate Bill 32 (SB 32). Signed into law in September 2016, SB 32 codifies the 2030 GHG reduction target in Executive Order B-30-15 (40 percent below 1990 levels by 2030). The bill authorizes CARB to adopt an interim GHG emissions level target to be achieved by 2030. CARB also must adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective GHG reductions.

CARB Scoping Plan

On December 11, 2008, CARB adopted its Scoping Plan, which functions as a roadmap to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. CARB's Scoping Plan contains the main strategies California will implement to reduce CO_2eq[11] emissions by 174 million metric tons (MT), or approximately 30 percent, from the State's projected 2020 emissions level of 596 million MT CO_2eq under a business as usual (BAU)[12] scenario. This is a reduction of 42 million MT CO_2eq, or almost ten percent, from 2002 to 2004 average emissions, but requires the reductions in the face of population and economic growth through 2020.

CARB's Scoping Plan calculates 2020 BAU emissions as the emissions that would be expected to occur in the absence of any GHG reduction measures. The 2020 BAU emissions estimate was derived by projecting emissions from a past baseline year using growth factors specific to each of the different economic sectors (e.g., transportation, electrical power, commercial and residential, industrial, etc.). CARB used three-year average emissions, by sector, for 2002 to 2004 to forecast emissions to 2020. At the time CARB's Scoping Plan process was initiated, 2004 was the most

[11] Carbon Dioxide Equivalent (CO_2eq) - A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential.

[12] "Business as Usual" refers to emissions that would be expected to occur in the absence of GHG reductions. See https://www.arb.ca.gov/cc/inventory/data/bau.htm. Note that there is significant controversy as to what BAU means. In determining the GHG 2020 limit, CARB used the above as the "definition." It is broad enough to allow for design features to be counted as reductions.

recent year for which actual data was available. The measures described in CARB's Scoping Plan are intended to reduce the projected 2020 BAU to 1990 levels, as required by AB 32.

AB 32 requires CARB to update the Scoping Plan at least once every five years. CARB adopted the first major update to the Scoping Plan on May 22, 2014. The updated Scoping Plan summarizes the most recent science related to climate change, including anticipated impacts to California and the levels of GHG reduction necessary to likely avoid risking irreparable damage. It identifies the actions California has already taken to reduce GHG emissions and focuses on areas where further reductions could be achieved to help meet the 2020 target established by AB 32. The Scoping Plan update also looks beyond 2020 toward the 2050 goal established in Executive Order S-3-05, though not yet adopted as state law, and observes that "a mid-term statewide emission limit will ensure that the State stays on course to meet our long-term goal." The Scoping Plan update does not establish or propose any specific post-2020 goals, but identifies such goals adopted by other governments or recommended by various scientific and policy organizations.

University of California, Irvine

UC Irvine Climate Action Plan

The UCI Climate Action Plan (CAP) was initially adopted in 2007 (updated in 2016) and has guided an array of climate action protection strategies and projects to reduce UCI GHG emissions. The CAP provides a roadmap for UCI to achieve its institutional climate protection commitments in support of University of California sustainability policy and campus sustainability goals. These commitments include reduction of GHG emissions to 1990 levels by the year 2020 (a reduction of approximately 49 percent from projected emissions), climate neutrality by the year 2025 (for on-site combustion of fossil fuels and purchased electricity), and climate neutrality by the year 2050 (for UCI commuters and University funded air travel).

University of California Sustainable Practices Policy

The University of California Sustainable Practices Policy (Sustainable Practices Policy) establishes goals in nine areas of sustainable practices: green building, clean energy, transportation, climate protection, sustainable operations, waste reduction and recycling, environmentally preferable purchasing, sustainable foodservice, sustainable water systems.

5.0 POTENTIAL GREENHOUSE GAS IMPACTS

CEQA THRESHOLDS

The environmental analysis in this section is patterned after the Initial Study Checklist recommended by the State *CEQA Guidelines*, as amended. The issues presented in the Initial Study Checklist have been utilized as thresholds of significance in this section. Accordingly, a project may create a significant environmental impact if it causes one or more of the following to occur:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (refer to Impact Statement GHG-1); and

- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases (refer to Impact Statement GHG-2).

Based on these standards and thresholds, the effects of the proposed project have been categorized as either a "less than significant impact" or a "potentially significant impact." Mitigation measures are recommended for potentially significant impacts.

SCAQMD Greenhouse Gas Emissions Thresholds

At this time, there is no absolute consensus in the State of California among CEQA lead agencies regarding the analysis of global climate change and the selection of significance criteria. In fact, numerous organizations, both public and private, have released advisories and guidance with recommendations designed to assist decision-makers in the evaluation of GHG emissions given the current uncertainty regarding when emissions reach the point of significance. Lead agencies may elect to rely on thresholds of significance recommended or adopted by State or regional agencies with expertise in the field of global climate change. (See C*EQA Guidelines* Section 15064.7[c].)

The SCAQMD has formed a GHG CEQA Significance Threshold Working Group (Working Group) to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. As of the last Working Group meeting (Meeting No. 15) held in September 2010, the SCAQMD is proposing to adopt a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency.[13]

With the tiered approach, the project is compared with the requirements of each tier sequentially and would not result in a significant impact if it complies with any tier. Tier 1 excludes projects that are specifically exempt from SB 97 from resulting in a significant impact. Tier 2 excludes

[13] The most recent SCAQMD GHG CEQA Significance Threshold Working Group meeting was held on September 2010.

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 all non-industrial projects, the SCAQMD is proposing a screening threshold of 3,000 $MTCO_2eq$ per year. SCAQMD concluded that projects with emissions less than the screening threshold would not result in a significant cumulative impact.

Tier 4 consists of three options. Under the Tier 4 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. However, the Working Group did not provide a recommendation for this approach. The Working Group folded the Tier 4 second option into the third Option. Under the Under the Tier 4 third option, the project would be excluded if it was below an efficiency-based threshold of 4.8 $MTCO_2eq$ per service population (SP) per year.[14] 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.

GHG efficiency metrics are utilized as thresholds to assess the GHG efficiency of a project on a per capita basis or on a "service population" basis (the sum of the number of jobs and the number of residents provided by a project) such that the project would allow for consistency with the goals of AB 32 (i.e., 1990 GHG emissions levels by 2020 and 2035). GHG efficiency thresholds can be determined by dividing the GHG emissions inventory goal of the State, by the estimated 2035 population and employment. This method allows highly efficient projects with higher mass emissions to meet the overall reduction goals of AB 32, and is appropriate, because the threshold can be applied evenly to all project types (residential or commercial/retail only and mixed use).

As the project involves an estimated 1,000 space parking lot on the UCI campus, SCAQMD's 3,000 $MTCO_2eq$ per year screening threshold has been selected as the significance threshold, as it is most applicable to the proposed project. The 3,000 $MTCO_2eq$ per threshold is used in addition to the qualitative thresholds of significance set forth below from section VII of Appendix G to the CEQA Guidelines.

[14] The project-level efficiency-based threshold of 4.8 $MTCO_2eq$ per SP per year is relative to the 2020 target date. The SCAQMD has also proposed efficiency-based thresholds relative to the 2035 target date to be consistent with the GHG reduction target date of SB 375. GHG reductions by the SB 375 target date of 2035 would be approximately 40 percent. Applying this 40 percent reduction to the 2020 targets results in an efficiency threshold for plans of 4.1 $MTCO_2eq$ per SP per year and an efficiency threshold at the project level of 3.0 $MTCO_2eq$/year.

PROJECT RELATED SOURCES OF GREENHOUSE GASES

GHG-1 GENERATE GREENHOUSE GAS EMISSIONS, EITHER DIRECTLY OR INDIRECTLY, THAT MAY HAVE A SIGNIFICANT IMPACT ON THE ENVIRONMENT?

Level of Significance Before Mitigation: *Less Than Significant Impact.*

Project-related GHG emissions would include emissions from direct and indirect sources. The proposed project would result in direct and indirect emissions of CO_2, N_2O, and CH_4, and would not result in other GHGs that would facilitate a meaningful analysis. Therefore, this analysis focuses on these three forms of GHG emissions. Direct project-related GHG emissions include emissions from construction activities, area sources, and mobile sources, while indirect sources include emissions from electricity consumption, water demand, and solid waste generation. Operational GHG estimations are based on energy emissions from natural gas usage and automobile emissions. Project GHG emissions were calculated using the California Emissions Estimator Model (CalEEMod) version 2016.3.1, which relies on trip generation data, and specific land use information to calculate emissions. As indicated in the *Bison Parking Lot Traffic Study* (Traffic Study) for the proposed project, prepared by Stantec Consulting Services (dated April 2017), the proposed project would result in approximately 5,503 new daily trips. Table 1, *Greenhouse Gas Emissions*, presents the estimated CO_2, N_2O, and CH_4 emissions of the proposed project without GHG-reducing design features and mitigation measures. The CalEEMod outputs are contained within the Appendix A, *Greenhouse Gas Emissions Data*.

Direct Project-Related Sources of Greenhouse Gases

- Construction Emissions. Construction GHG emissions are typically summed and amortized over the lifetime of the project (assumed to be 30 years), then added to the operational emissions.[15] As seen in Table 1, the proposed project would result in 217.71 $MTCO_2eq/yr$, which represents 7.26 $MTCO_2eq/yr$ when amortized over 30 years.

- Area Source. Area source emissions occur from hearths, architectural coatings, landscaping equipment, and consumer products and were calculated using CalEEMod and project-specific land use data. Area source emissions associated with the proposed parking lot would occur from landscape equipment and architectural coatings (i.e., striping). As noted in Table 1, the proposed project would result in 0.03 $MTCO_2eq/year$ from area source GHG emissions.

- Mobile Source. As noted above, the project would generate 5,503 new vehicle trips. The project would directly result in 284.74 $MTCO_2eq/yr$ of mobile source-generated GHG emissions.

[15] The project lifetime is based on the standard 30 year assumption of the South Coast Air Quality Management District, *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*, October 2008.

Table 1
Greenhouse Gas Emissions

Source	CO_2	CH_4		N_2O		Total Metric Tons of CO_2eq
	Metric Tons/yr[1]	Metric Tons/yr[1]	Metric Tons of CO_2eq[2]	Metric Tons/yr[1]	Metric Tons of CO_2eq[2]	
Direct Emissions						
• Construction (total of 217.71 $MTCO_2eq$ amortized over 30 years)	7.21	0.00	0.05	0.00	0.00	7.26
• Area Source	0.02	0.00	0.00	0.00	0.00	0.03
• Mobile Source	283.20	0.06	1.54	0.00	0.00	284.74
***Total Mitigated Direct Emissions*[3]**	290.43	0.06	1.59	0	0	292.03
Indirect Emissions						
• Energy	92.53	0.00	0.10	0.00	0.24	92.86
• Water Demand	0.00	0.00	0.00	0.00	0.00	0.00
• Solid Waste Generation	0.00	0.00	0.00	0.00	0.00	0.00
***Total Mitigated Indirect Emissions*[3]**	92.53	0.00	0.10	0.00	0.24	92.86
***Total Mitigated Project-Related Emissions*[3]**	***384.89 $MTCO_2eq/yr$***					
Mitigated GHG Emissions Exceed Threshold?	***No***					

Notes:
1. Emissions calculated using CalEEMod.
2. CO_2 Equivalent values calculated using the EPA Website, *Greenhouse Gas Equivalencies Calculator*, http://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator, accessed April 2017.
3. Totals may be slightly off due to rounding.

Refer to Appendix A, *Greenhouse Gas Emissions Data*, for detailed model input/output data.

Indirect Project-Related Sources of Greenhouse Gases

- Energy Consumption. Energy consumption emissions were calculated using CalEEMod and project-specific land use data. Electricity would be provided to the project site via Southern California Edison (SCE). The primary use of electricity would be from parking lot lighting. CalEEMod calculates the energy use from lighting in open parking lots. The project would indirectly result in 92.86 $MTCO_2eq$/year due to energy consumption.

- Water Demand. The project would include a minor amount of landscaping throughout the parking lot. However, the water demands for the parking lot landscaping would be minor and energy source emissions associated with water consumption would be nominal.

- Solid Waste. The project would not generate solid waste, as the proposed project is a parking lot. Therefore, the project would not result in an emissions increase from indirect energy impacts due to solid waste.

As depicted in Table 1, implementation of the proposed project would result in project-related GHG emissions of 384.89 $MTCO_2eq$/yr. Therefore, the project would not exceed the 3,000 $MTCO_2eq$/yr significance threshold. Impacts in this regard would be less than significant.

Level of Significance After Mitigation: *Less Than Significant Impact.*

GHG PLAN CONSISTENCY

GHG-2 CONFLICT WITH AN APPLICABLE PLAN, POLICY, OR REGULATION ADOPTED FOR THE PURPOSE OF REDUCING THE EMISSIONS OF GREENHOUSE GASES?

Level of Significance Before Mitigation: *Less Than Significant Impact.*

As discussed above, UCI's Sustainable Practices Policy establishes goals and policies to reduce GHG emissions from various sources at the UCI campus. In addition, UCI adopted a Climate Action Plan (CAP) in 2007 (updated in 2016) in cooperation with AB 32, and has guided an array of climate action protection strategies and projects to reduce UCI GHG emissions. The purpose of this CAP is to identify UCI's long-term vision and commitment to reduce its GHG emissions in support of University of California Sustainability Practices Policy and campus sustainability goals. These commitments include reduction of GHG emissions to 1990 levels by the year 2020 (a reduction of approximately 49 percent from projected emissions), climate neutrality by the year 2025 (for on-site combustion of fossil fuels and purchased electricity), and climate neutrality by the year 2050 (for UCI commuters and University funded air travel). The CAP does not contain GHG thresholds. However, as the project-related GHG emissions are below the SCAQMD's 3,000 $MTCO_2eq$ per year threshold (in compliance with AB 32), the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Thus, a less than significant impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.

Level of Significance After Mitigation: *Less Than Significant Impact.*

6.0 REFERENCES

6.1 LIST OF PREPARERS

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2. California Office of the Attorney General, *Addressing Global Warming Impacts at the Project Level*, updated January 6, 2008.

3. California Environmental Protection Agency, *Climate Action Team, Climate Action Team Report to Governor Schwarzenegger and the Legislature (Executive Summary)*, March, 2006.

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13. University of California, Irvine, *Climate Action Plan, 2016 Update*, http://sustainability.uci.edu/2017/01/19/ucis-2016-climate-action-plan-update/, accessed April 2017.

6.3 WEB SITES/PROGRAMS

Environ International Corporation and the South Coast Air Quality Management District, *California Emissions Estimator Model (CalEEMod) Version 2016.3.1*, 2016.

Google Earth, 2017.

APPENDIX A: GREENHOUSE GAS EMISSIONS DATA

UCI Bison Parking Lot

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	1,000.00	Space	7.56	330,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2017
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per Construction Questionnaire

Construction Phase - Per Construction Questionnaire

Off-road Equipment -

Off-road Equipment - Per Construction Questionnaire

Off-road Equipment - Per Construction Questionnaire

Off-road Equipment - Per Construction Questionnaire

Trips and VMT - Cut/fill balanced onsite

Grading - Per Construction Questionnaire

Vehicle Trips - Trip rates per Traffic Study

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	20.00	22.00
tblConstructionPhase	NumDays	20.00	44.00
tblConstructionPhase	NumDays	20.00	42.00
tblGrading	AcresOfGrading	22.00	7.56
tblGrading	MaterialExported	0.00	45,000.00
tblGrading	MaterialImported	0.00	45,000.00
tblLandUse	BuildingSpaceSquareFeet	400,000.00	330,000.00
tblLandUse	LandUseSquareFeet	400,000.00	330,000.00
tblLandUse	LotAcreage	9.00	7.56
tblOffRoadEquipment	HorsePower	158.00	81.00
tblOffRoadEquipment	HorsePower	402.00	247.00
tblOffRoadEquipment	HorsePower	97.00	158.00
tblOffRoadEquipment	LoadFactor	0.38	0.73
tblOffRoadEquipment	LoadFactor	0.38	0.40
tblOffRoadEquipment	LoadFactor	0.37	0.38
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblProjectCharacteristics	OperationalYear	2018	2017
tblTripsAndVMT	HaulingTripLength	20.00	0.20
tblVehicleTrips	CC_TTP	0.00	35.80
tblVehicleTrips	CNW_TTP	0.00	43.20
tblVehicleTrips	CW_TTP	0.00	21.00
tblVehicleTrips	ST_TR	0.00	5.50
tblVehicleTrips	SU_TR	0.00	5.50
tblVehicleTrips	WD_TR	0.00	5.50

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.1323	1.4451	0.6679	1.3200e-003	0.2800	0.0684	0.3484	0.1484	0.0632	0.2117	0.0000	122.4995	122.4995	0.0342	0.0000	123.3538
2018	0.0891	0.8934	0.5439	1.0200e-003	0.2833	0.0408	0.3241	0.1493	0.0376	0.1869	0.0000	93.7109	93.7109	0.0260	0.0000	94.3602
Maximum	**0.1323**	**1.4451**	**0.6679**	**1.3200e-003**	**0.2833**	**0.0684**	**0.3484**	**0.1493**	**0.0632**	**0.2117**	**0.0000**	**122.4995**	**122.4995**	**0.0342**	**0.0000**	**123.3538**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.1323	1.4451	0.6679	1.3200e-003	0.1128	0.0684	0.1813	0.0589	0.0632	0.1221	0.0000	122.4994	122.4994	0.0342	0.0000	123.3537
2018	0.0891	0.8934	0.5439	1.0200e-003	0.1161	0.0408	0.1569	0.0597	0.0376	0.0973	0.0000	93.7108	93.7108	0.0260	0.0000	94.3601
Maximum	**0.1323**	**1.4451**	**0.6679**	**1.3200e-003**	**0.1161**	**0.0684**	**0.1813**	**0.0597**	**0.0632**	**0.1221**	**0.0000**	**122.4994**	**122.4994**	**0.0342**	**0.0000**	**123.3537**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.35**	**0.00**	**49.72**	**60.17**	**0.00**	**44.96**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
1	**11-1-2017**	**1-31-2018**	2.1220	2.1220

2	2-1-2018	4-30-2018	0.4116	0.4116
		Highest	2.1220	2.1220

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0272	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0248	0.0248	7.0000e-005	0.0000	0.0266
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	92.5277	92.5277	3.8200e-003	7.9000e-004	92.8587
Mobile	1.2136	2.5878	5.7922	3.0900e-003	0.0000	7.0600e-003	7.0600e-003	0.0000	6.5800e-003	6.5800e-003	0.0000	283.2040	283.2040	0.0616	0.0000	284.7440
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.2408**	**2.5880**	**5.8052**	**3.0900e-003**	**0.0000**	**7.1100e-003**	**7.1100e-003**	**0.0000**	**6.6300e-003**	**6.6300e-003**	**0.0000**	**375.7564**	**375.7564**	**0.0655**	**7.9000e-004**	**377.6293**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0272	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0248	0.0248	7.0000e-005	0.0000	0.0266
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	92.5277	92.5277	3.8200e-003	7.9000e-004	92.8587
Mobile	1.2136	2.5878	5.7922	3.0900e-003	0.0000	7.0600e-003	7.0600e-003	0.0000	6.5800e-003	6.5800e-003	0.0000	283.2040	283.2040	0.0616	0.0000	284.7440
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.2408**	**2.5880**	**5.8052**	**3.0900e-003**	**0.0000**	**7.1100e-003**	**7.1100e-003**	**0.0000**	**6.6300e-003**	**6.6300e-003**	**0.0000**	**375.7564**	**375.7564**	**0.0655**	**7.9000e-004**	**377.6293**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	11/1/2017	11/30/2017	5	22	
2	Grading	Grading	12/1/2017	1/31/2018	5	44	
3	Paving	Paving	2/1/2018	3/30/2018	5	42	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 7.56

Acres of Paving: 7.56

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	2	8.00	81	0.73
Demolition	Off-Highway Trucks	3	8.00	247	0.40
Demolition	Rubber Tired Dozers	3	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	8.00	158	0.38
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Off-Highway Trucks	1		402	0.38
Grading	Rollers	2		80	0.38

Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cranes	1		231	0.29
Paving	Off-Highway Trucks	3		402	0.38
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Skid Steer Loaders	1		65	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	11	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	3,313.00	14.70	6.90	0.20	LD_Mix	HDT_Mix	HHDT
Paving	11	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0893	0.9300	0.4528	8.5000e-004		0.0475	0.0475		0.0440	0.0440	0.0000	78.5978	78.5978	0.0228	0.0000	79.1676
Total	**0.0893**	**0.9300**	**0.4528**	**8.5000e-004**		**0.0475**	**0.0475**		**0.0440**	**0.0440**	**0.0000**	**78.5978**	**78.5978**	**0.0228**	**0.0000**	**79.1676**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5500e-003	1.2100e-003	0.0130	4.0000e-005	3.3800e-003	2.0000e-005	3.4000e-003	9.0000e-004	2.0000e-005	9.2000e-004	0.0000	3.1989	3.1989	9.0000e-005	0.0000	3.2013
Total	**1.5500e-003**	**1.2100e-003**	**0.0130**	**4.0000e-005**	**3.3800e-003**	**2.0000e-005**	**3.4000e-003**	**9.0000e-004**	**2.0000e-005**	**9.2000e-004**	**0.0000**	**3.1989**	**3.1989**	**9.0000e-005**	**0.0000**	**3.2013**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0893	0.9300	0.4528	8.5000e-004		0.0475	0.0475		0.0440	0.0440	0.0000	78.5977	78.5977	0.0228	0.0000	79.1675
Total	**0.0893**	**0.9300**	**0.4528**	**8.5000e-004**		**0.0475**	**0.0475**		**0.0440**	**0.0440**	**0.0000**	**78.5977**	**78.5977**	**0.0228**	**0.0000**	**79.1675**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5500e-003	1.2100e-003	0.0130	4.0000e-005	3.3800e-003	2.0000e-005	3.4000e-003	9.0000e-004	2.0000e-005	9.2000e-004	0.0000	3.1989	3.1989	9.0000e-005	0.0000	3.2013
Total	**1.5500e-003**	**1.2100e-003**	**0.0130**	**4.0000e-005**	**3.3800e-003**	**2.0000e-005**	**3.4000e-003**	**9.0000e-004**	**2.0000e-005**	**9.2000e-004**	**0.0000**	**3.1989**	**3.1989**	**9.0000e-005**	**0.0000**	**3.2013**

3.3 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2741	0.0000	0.2741	0.1469	0.0000	0.1469	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0385	0.4322	0.1779	3.4000e-004		0.0207	0.0207		0.0191	0.0191	0.0000	31.1991	31.1991	9.5600e-003	0.0000	31.4381
Total	**0.0385**	**0.4322**	**0.1779**	**3.4000e-004**	**0.2741**	**0.0207**	**0.2948**	**0.1469**	**0.0191**	**0.1659**	**0.0000**	**31.1991**	**31.1991**	**9.5600e-003**	**0.0000**	**31.4381**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8800e-003	0.0809	0.0155	7.0000e-005	2.6000e-004	1.1000e-004	3.8000e-004	7.0000e-005	1.1000e-004	1.8000e-004	0.0000	7.3226	7.3226	1.6600e-003	0.0000	7.3642
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0600e-003	8.2000e-004	8.8300e-003	2.0000e-005	2.3100e-003	2.0000e-005	2.3200e-003	6.1000e-004	1.0000e-005	6.3000e-004	0.0000	2.1811	2.1811	6.0000e-005	0.0000	2.1827

Total	2.9400e-003	0.0817	0.0243	9.0000e-005	2.5700e-003	1.3000e-004	2.7000e-003	6.8000e-004	1.2000e-004	8.1000e-004	0.0000	9.5037	9.5037	1.7200e-003	0.0000	9.5469

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1069	0.0000	0.1069	0.0573	0.0000	0.0573	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0385	0.4322	0.1779	3.4000e-004		0.0207	0.0207		0.0191	0.0191	0.0000	31.1991	31.1991	9.5600e-003	0.0000	31.4380
Total	**0.0385**	**0.4322**	**0.1779**	**3.4000e-004**	**0.1069**	**0.0207**	**0.1276**	**0.0573**	**0.0191**	**0.0763**	**0.0000**	**31.1991**	**31.1991**	**9.5600e-003**	**0.0000**	**31.4380**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8800e-003	0.0809	0.0155	7.0000e-005	2.6000e-004	1.1000e-004	3.8000e-004	7.0000e-005	1.1000e-004	1.8000e-004	0.0000	7.3226	7.3226	1.6600e-003	0.0000	7.3642
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0600e-003	8.2000e-004	8.8300e-003	2.0000e-005	2.3100e-003	2.0000e-005	2.3200e-003	6.1000e-004	1.0000e-005	6.3000e-004	0.0000	2.1811	2.1811	6.0000e-005	0.0000	2.1827
Total	**2.9400e-003**	**0.0817**	**0.0243**	**9.0000e-005**	**2.5700e-003**	**1.3000e-004**	**2.7000e-003**	**6.8000e-004**	**1.2000e-004**	**8.1000e-004**	**0.0000**	**9.5037**	**9.5037**	**1.7200e-003**	**0.0000**	**9.5469**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2741	0.0000	0.2741	0.1469	0.0000	0.1469	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0392	0.4367	0.1872	3.7000e-004		0.0206	0.0206		0.0189	0.0189	0.0000	33.6206	33.6206	0.0105	0.0000	33.8823
Total	**0.0392**	**0.4367**	**0.1872**	**3.7000e-004**	**0.2741**	**0.0206**	**0.2947**	**0.1469**	**0.0189**	**0.1658**	**0.0000**	**33.6206**	**33.6206**	**0.0105**	**0.0000**	**33.8823**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8200e-003	0.0860	0.0154	8.0000e-005	2.7000e-004	9.0000e-005	3.6000e-004	7.0000e-005	9.0000e-005	1.6000e-004	0.0000	8.1379	8.1379	1.6800e-003	0.0000	8.1798
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0400e-003	7.9000e-004	8.5900e-003	3.0000e-005	2.5200e-003	2.0000e-005	2.5400e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.3191	2.3191	6.0000e-005	0.0000	2.3207
Total	**2.8600e-003**	**0.0867**	**0.0240**	**1.1000e-004**	**2.7900e-003**	**1.1000e-004**	**2.9000e-003**	**7.4000e-004**	**1.1000e-004**	**8.5000e-004**	**0.0000**	**10.4570**	**10.4570**	**1.7400e-003**	**0.0000**	**10.5005**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1069	0.0000	0.1069	0.0573	0.0000	0.0573	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0392	0.4367	0.1872	3.7000e-004		0.0206	0.0206		0.0189	0.0189	0.0000	33.6206	33.6206	0.0105	0.0000	33.8823

Total	0.0392	0.4367	0.1872	3.7000e-004	0.1069	0.0206	0.1275	0.0573	0.0189	0.0762	0.0000	33.6206	33.6206	0.0105	0.0000	33.8823

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8200e-003	0.0860	0.0154	8.0000e-005	2.7000e-004	9.0000e-005	3.6000e-004	7.0000e-005	9.0000e-005	1.6000e-004	0.0000	8.1379	8.1379	1.6800e-003	0.0000	8.1798
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0400e-003	7.9000e-004	8.5900e-003	3.0000e-005	2.5200e-003	2.0000e-005	2.5400e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.3191	2.3191	6.0000e-005	0.0000	2.3207
Total	**2.8600e-003**	**0.0867**	**0.0240**	**1.1000e-004**	**2.7900e-003**	**1.1000e-004**	**2.9000e-003**	**7.4000e-004**	**1.1000e-004**	**8.5000e-004**	**0.0000**	**10.4570**	**10.4570**	**1.7400e-003**	**0.0000**	**10.5005**

3.4 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0345	0.3679	0.3107	4.8000e-004		0.0201	0.0201		0.0185	0.0185	0.0000	43.7044	43.7044	0.0136	0.0000	44.0446
Paving	9.9000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0444**	**0.3679**	**0.3107**	**4.8000e-004**		**0.0201**	**0.0201**		**0.0185**	**0.0185**	**0.0000**	**43.7044**	**43.7044**	**0.0136**	**0.0000**	**44.0446**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6700e-003	2.0200e-003	0.0220	7.0000e-005	6.4600e-003	4.0000e-005	6.5000e-003	1.7100e-003	4.0000e-005	1.7500e-003	0.0000	5.9289	5.9289	1.6000e-004	0.0000	5.9328
Total	**2.6700e-003**	**2.0200e-003**	**0.0220**	**7.0000e-005**	**6.4600e-003**	**4.0000e-005**	**6.5000e-003**	**1.7100e-003**	**4.0000e-005**	**1.7500e-003**	**0.0000**	**5.9289**	**5.9289**	**1.6000e-004**	**0.0000**	**5.9328**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0345	0.3679	0.3107	4.8000e-004		0.0201	0.0201		0.0185	0.0185	0.0000	43.7044	43.7044	0.0136	0.0000	44.0445
Paving	9.9000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0444**	**0.3679**	**0.3107**	**4.8000e-004**		**0.0201**	**0.0201**		**0.0185**	**0.0185**	**0.0000**	**43.7044**	**43.7044**	**0.0136**	**0.0000**	**44.0445**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Worker	2.6700e-003	2.0200e-003	0.0220	7.0000e-005	6.4600e-003	4.0000e-005	6.5000e-003	1.7100e-003	4.0000e-005	1.7500e-003	0.0000	5.9289	5.9289	1.6000e-004	0.0000	5.9328
Total	**2.6700e-003**	**2.0200e-003**	**0.0220**	**7.0000e-005**	**6.4600e-003**	**4.0000e-005**	**6.5000e-003**	**1.7100e-003**	**4.0000e-005**	**1.7500e-003**	**0.0000**	**5.9289**	**5.9289**	**1.6000e-004**	**0.0000**	**5.9328**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.2136	2.5878	5.7922	3.0900e-003	0.0000	7.0600e-003	7.0600e-003	0.0000	6.5800e-003	6.5800e-003	0.0000	283.2040	283.2040	0.0616	0.0000	284.7440
Unmitigated	1.2136	2.5878	5.7922	3.0900e-003	0.0000	7.0600e-003	7.0600e-003	0.0000	6.5800e-003	6.5800e-003	0.0000	283.2040	283.2040	0.0616	0.0000	284.7440

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	5,500.00	5,500.00	5500.00		
Total	5,500.00	5,500.00	5,500.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	16.60	8.40	6.90	21.00	35.80	43.20	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH

Parking Lot	0.543066	0.045258	0.213197	0.125617	0.019254	0.005808	0.023323	0.014742	0.001554	0.001731	0.004738	0.000577	0.001134

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	92.5277	92.5277	3.8200e-003	7.9000e-004	92.8587
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	92.5277	92.5277	3.8200e-003	7.9000e-004	92.8587
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	290400	92.5277	3.8200e-003	7.9000e-004	92.8587
Total		**92.5277**	**3.8200e-003**	**7.9000e-004**	**92.8587**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			

Parking Lot	290400	92.5277	3.8200e-003	7.9000e-004	92.8587
Total		**92.5277**	**3.8200e-003**	**7.9000e-004**	**92.8587**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0272	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0248	0.0248	7.0000e-005	0.0000	0.0266
Unmitigated	0.0272	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0248	0.0248	7.0000e-005	0.0000	0.0266

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0213					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.2500e-003	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0248	0.0248	7.0000e-005	0.0000	0.0266

Total	0.0272	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0248	0.0248	7.0000e-005	0.0000	0.0266

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0213					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.2500e-003	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0248	0.0248	7.0000e-005	0.0000	0.0266
Total	**0.0272**	**1.2000e-004**	**0.0130**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0248**	**0.0248**	**7.0000e-005**	**0.0000**	**0.0266**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e

	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX F

Traffic Study

Bison Parking Lot
Traffic Study

Prepared for:
UC Irvine Environmental Planning
and Sustainability

Prepared by:
Stantec Consulting Services Inc.

June 8, 2017

Sign-off Sheet

This document entitled Bison Parking Lot Traffic Study was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of UC Irvine Environmental Planning and Sustainability (the "Client").

Prepared by ______________________________________
(signature)

Sandhya Perumalla
(949) 923-6074

Reviewed by ______________________________________
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(949) 923-6058

Stantec

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Glossary

ADT	**Average Daily Traffic.** Generally used to measure the total two-directional traffic volumes passing a given point on a roadway.
ICU	**Intersection Capacity Utilization.** A measure of the volume-to-capacity ratio for an intersection. Typically used to determine the peak hour level of service for a given set of intersection volumes.
LOS	**Level of Service.** A scale used to evaluate circulation system performance based on ICU values at intersections or volume-to-capacity ratios of arterial segments.
Peak Hour	This refers to the hour during the AM peak period (typically 7 AM to 9 AM) or the PM peak period (typically 4 PM to 6 PM) in which the greatest number of vehicle trips are generated by a given land use or are travelling on a given roadway.
V/C	**Volume-to-Capacity Ratio.** This is typically used to describe the percentage of capacity utilized by existing or projected traffic on a segment of an arterial or intersection.

1.0 INTRODUCTION

Stantec Consulting Services Inc. (Stantec) has performed a traffic study for the proposed University of California, Irvine (UCI) Bison parking lot project. The purpose of this study is to determine the amount of traffic generated by the proposed project and to analyze the impacts of the project on the affected portions of the circulation system.

1.1 BACKGROUND AND SCOPE

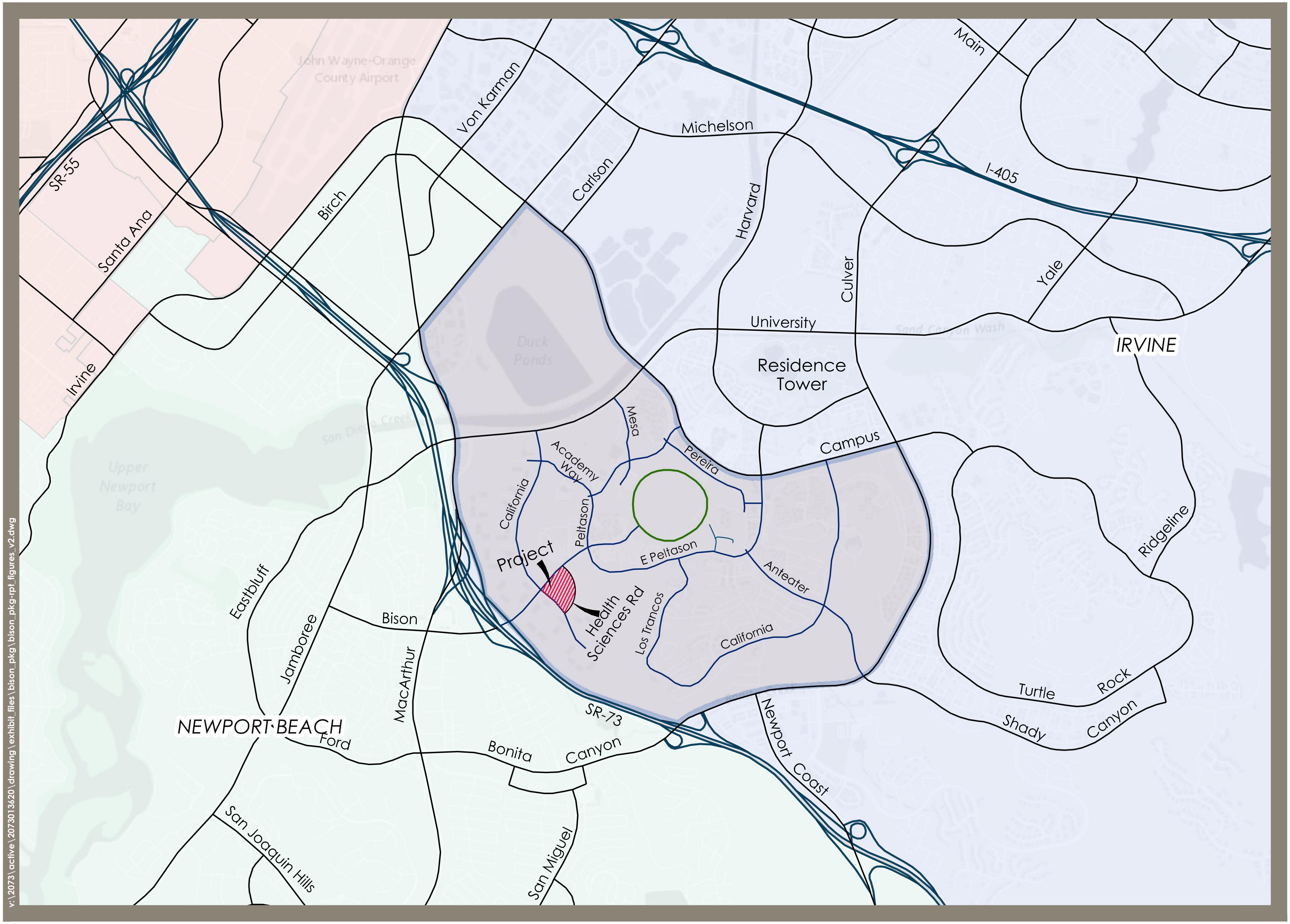
The project site is located in the area generally bounded by Bison Avenue, California Avenue and Health Sciences Road. See Figure 1-1 for the location of the project site. The proposed design-build Bison parking lot project would consist of the construction of an approximately 1,000 space paved parking lot with lighting. No significant increase in campus population, faculty, staff, or students is anticipated as a result of this project. The parking lot would be constructed to accommodate current and future parking needs and to ease the loss of parking spaces in other areas on campus.

Recent campus growth and construction has contributed to a loss of nearly 1,200 parking stalls between 2007 and 2015. As the University continues to grow, the expected loss of available parking will increase as new buildings replace parking lots. The addition of the proposed parking lot will add parking inventory and accommodate campus growth. Additionally, with the lack of a parking structure on the south side of campus, this proposed lot will offset the shortage of available parking during the planned School of Medicine construction projects. The parking lot will also serve as a site for reserved parking when diverting traffic during large events.

1.2 STUDY AREA

The UCI campus is located in the southwest portion of the City of Irvine and is adjacent to the City of Newport Beach. The study area encompasses four intersections in and around the UCI campus. Three of the intersections are located within the UCI campus and one intersection is located along the perimeter of the UCI campus in the surrounding City of Irvine. There are no Orange County Congestion Management Program (CMP) monitoring intersections within the study area. See Figure 1-2 for the location of the study area intersections.

The study area was defined by identifying how project trips would distribute to the adjacent roads and determining the limits of where project peak hour impacts become insignificant. Key intersections within the study area were selected for peak hour analysis. Since the proposed project doesn't directly generate new traffic (i.e., the parking lot results in a redistribution of traffic to the new parking location), the study area is focused on the roadways in the immediate vicinity of the parking lot. Outside of this immediate area, and on roadways within the neighboring jurisdictions of the City of Newport Beach and Irvine, traffic volumes will not change



Stantec

Figure 1-1

Project Location

1.2

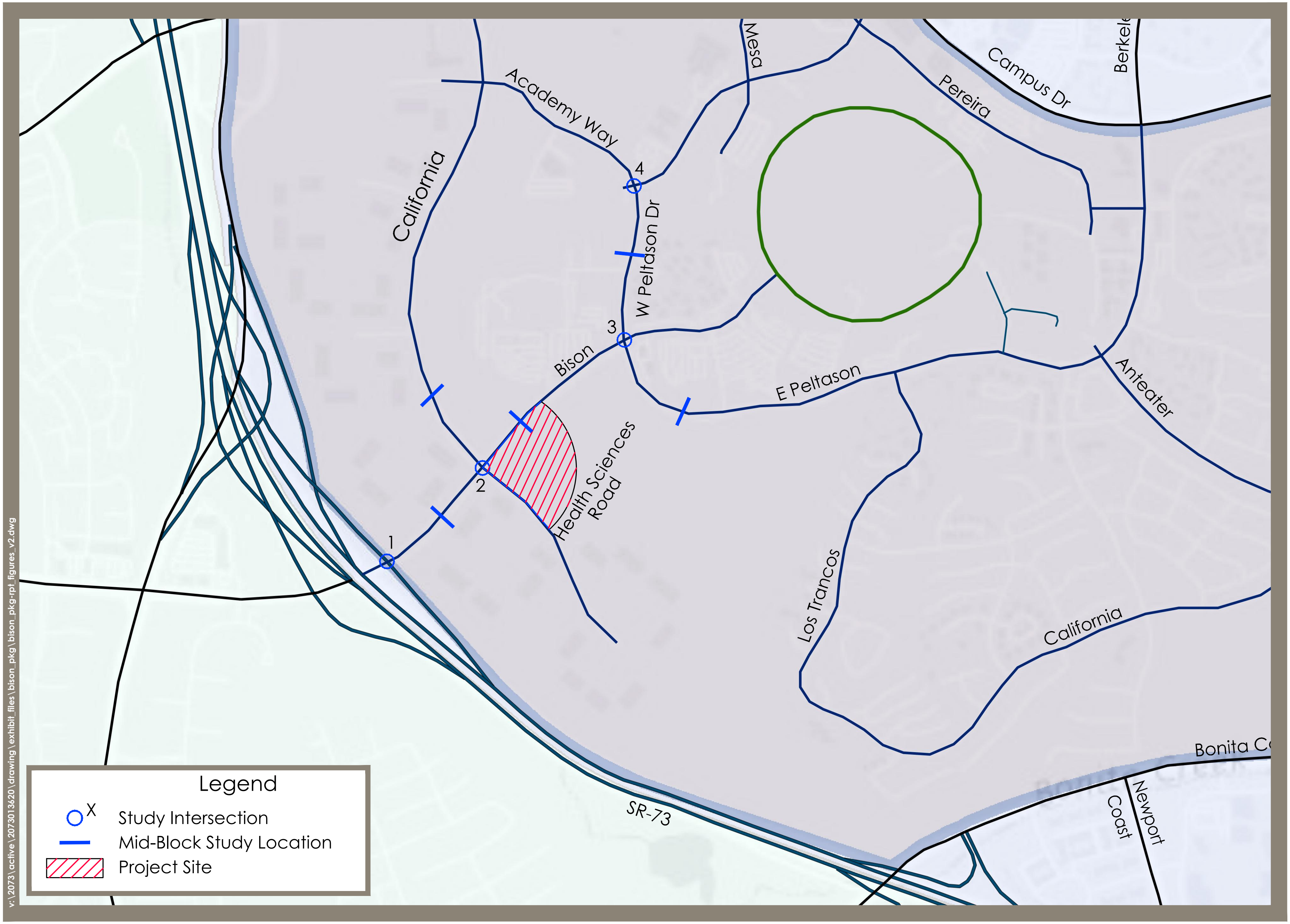


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Figure 1-2

Study Intersection Locations

appreciably due to the proposed project. However, a worst-case scenario where all the project trips are considered as new trips under build out conditions is analyzed without giving credit to the redistribution of traffic.

The parking lot is proposed to have two driveways on the Health Sciences Road to access the parking lot. One is a full-access driveway approximately 450 feet north of California Avenue, opposite of an existing driveway that serves a gated area, the other is a right-turn-in/right-turn-out only driveway approximately 410 feet south of Bison Avenue. See Figure 1-3 for the proposed site plan.

1.3 METHODOLOGY

Existing traffic counts were collected for key roadway segments and study intersections to describe existing traffic conditions. Since the proposed project doesn't directly generate traffic, trip generation rates were derived based on the maximum number of parking spaces occupied during full occupancy. Specific rates for each hour of the day, including the proportion of inbound and outbound traffic, were derived based on observed traffic patterns of traffic entering and leaving the area.

Traffic forecasts for the study area circulation system were generated using a combination of data from the UCI Main Campus Traffic Model (MCTM) for on-campus study intersections and City of Irvine Traffic Analysis Model (ITAM) for the intersection in the City of Irvine for the UCI Long Range Development Plan (LRDP) Build-out conditions.

The project trip distribution was determined based on the observed traffic patterns in the area. The project-generated traffic volumes were estimated using the trip distribution. The project volumes were then added to the counts for existing plus project evaluation, and added to the model forecasts for the LRDP build-out with-project condition evaluation.

1.4 PERFORMANCE CRITERIA

The traffic analysis uses a set of performance criteria for evaluating intersection capacity to determine potential project impacts. In traffic impact studies, impact criteria are based on two primary measures. The first is "capacity," which establishes the vehicle carrying ability of a road segment, and the second is "volume." The volume-to-capacity (V/C) ratio corresponds with a level of service (LOS). Traffic LOS is designated A through F, with LOS A representing free flow conditions, and LOS F representing severe traffic congestion. Traffic flow quality for the different LOS is described in Table 1-1.

For the stop-controlled study intersection, the Highway Capacity Manual (HCM) methodology for estimating intersection delay is used to determine the intersection peak hour LOS. The ICU values and vehicle delay ranges that correspond to LOS A through F are summarized in Table 1-2.

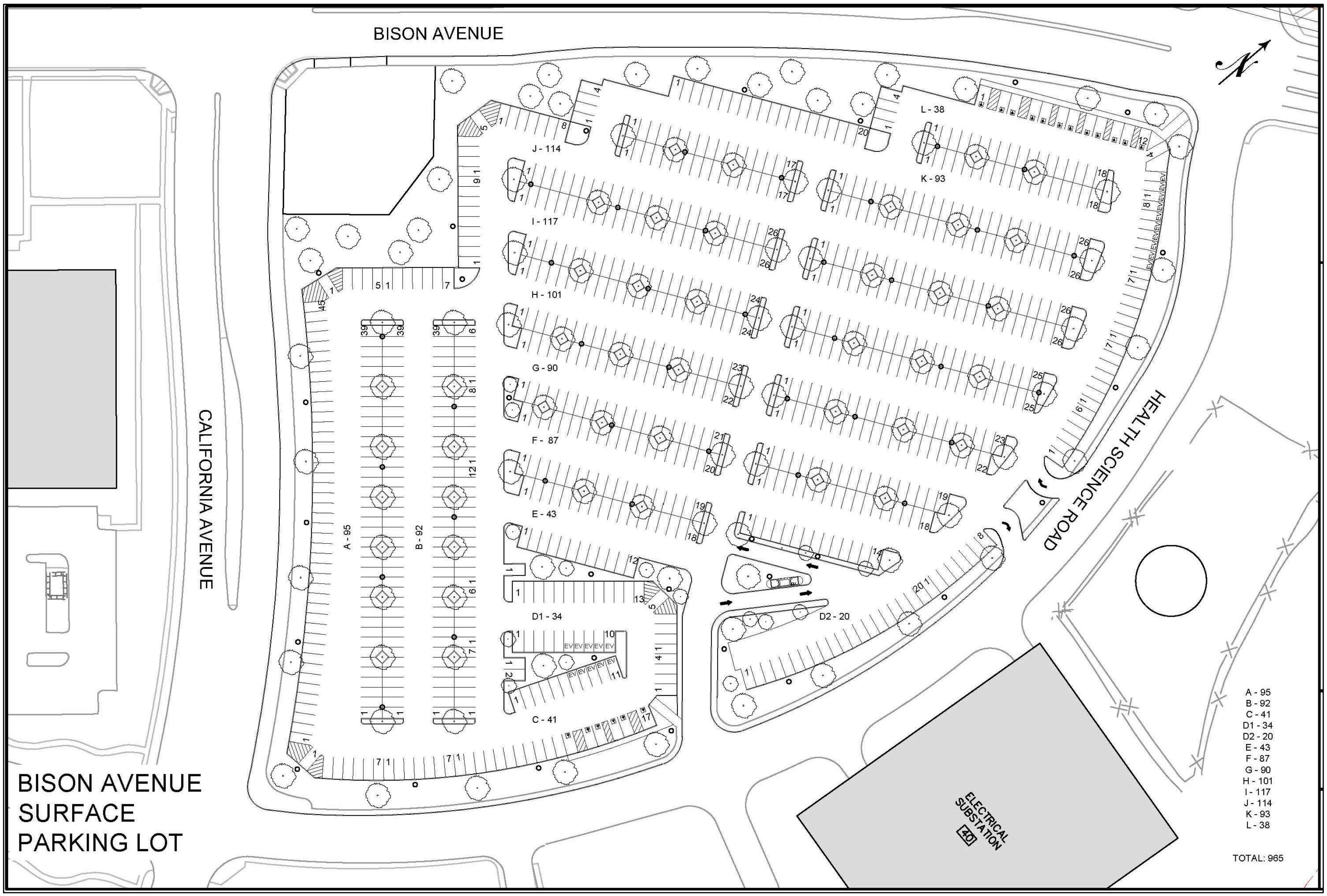

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Figure 1-3

Site Plan

Table 1-1 Level of Service Descriptions – Arterial Streets and Intersections

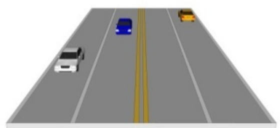
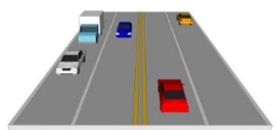
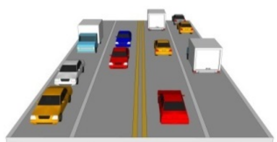
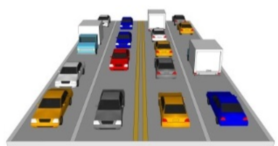
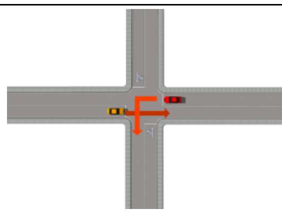
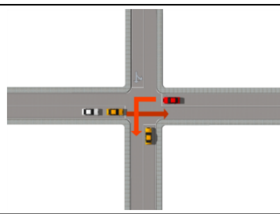
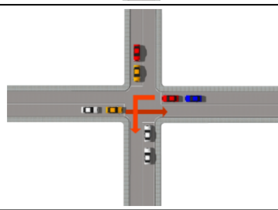
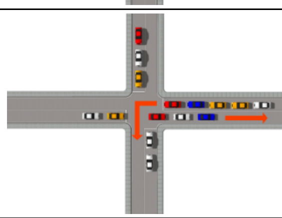
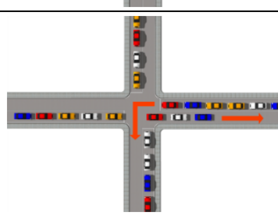
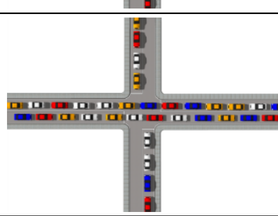
Level of Service (LOS)		Description
A		LOS A describes primarily free-flow operations. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at the intersections is minimal. The travel speed exceeds 85% of the base free-flow speed.
B		LOS B describes reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted, and control delay at the intersections is not significant. The travel speed is between 67% and 85% of the base free-flow speed.
C		LOS C describes stable operation. The ability to maneuver and change lanes at midsegment locations may be more restricted than at LOS B. Longer queues at the intersections may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed.
D		LOS D indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the intersections. The travel speed is between 40% and 50% of the base free-flow speed.
E		LOS E is characterized by unstable operation and significant delay. Such operations may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the intersections. The travel speed is between 30% and 40% of the base free-flow speed.
F		LOS F is characterized by flow at extremely low speed. Congestion is likely occurring at the intersections, as indicated by high delay and extensive queuing. The travel speed is 30% or less of the base free-flow speed.
Source: Highway Capacity Manual 2010, Transportation Research Board, National Research Council		

Table 1-2 Intersection Level of Service Ranges (ICU and HCM Delay)

Level of Service (LOS)		Intersection Capacity Utilization (ICU)	Highway Capacity Manual (HCM) Average Delay
			Stop-Controlled Intersection
A		0.00 – 0.60	0.00 – 10.0 seconds
B		0.61 – 0.70	10.1 – 15.0 seconds
C		0.71 – 0.80	15.1 – 25.0 seconds
D		0.81 – 0.90	25.1 – 35.0 seconds
E		0.91 – 1.00	35.1 – 50.0 seconds
F		Above 1.00	Above 50.0 seconds

Sources: Highway Capacity Manual 2010, Transportation Research Board, National Research Council
Orange County Congestion Management Program

Average daily traffic (ADT) volumes are presented for roadway links in the study area. The traffic analysis also analyzes the AM and PM peak hour volumes for study area intersections. Peak hour volumes and capacities are compared by means of intersection capacity utilization (ICU) values for signalized intersections.

Both the V/C and LOS are used in identifying impacts. Certain LOS values are deemed acceptable by the various governing jurisdictions within the traffic analysis study area, and increases in the V/C ratio which cause or contribute to the LOS being unacceptable are defined as an adverse impact. LOS D is the performance standard applied in this study for the intersections in the study area.

Since UCI does not have an adopted performance criteria for intersections, the City of Irvine's performance criteria were used in the analysis to identify project impacts at the signalized intersection locations. Significant impacts are defined for this analysis as an increase of 0.02 or more in the ICU value causing or worsening LOS E or F conditions, consistent with the City of Irvine Traffic Impact Analysis Guidelines. For the stop-controlled study intersections, if the LOS reaches E or F, the intersection is evaluated further for possible improvement with a traffic signal. The performance criteria applied for this analysis, are summarized in Table 1-3.

1.5 REFERENCES

1. *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

2. *University of California Irvine Long Range Development Plan 2007 Update Traffic Study*, Austin-Foust Associates, Inc., May 2007.

Table 1-3 Performance Criteria for Locations Analyzed within the Study Area

Intersections

V/C Calculation Methodology

Level of service based on peak hour intersection capacity utilization (ICU) values and calculated using the following assumptions:

City of Irvine & UCI
Saturation Flow Rate: 1,700 vehicles/hour/lane
Clearance Interval: .05
Right-Turn-On-Red Utilization Factor*: .75
* "De-facto" right-turn lane is assumed in the ICU calculation if 19 feet from edge to outside of through-lane exists and parking is prohibited during peak periods.

HCM Delay Methodology

Level of service based on peak hour average intersection delay and calculated using the following assumptions:

Ideal Flow Rate: 1,900 vehicles/hour/lane
Peak Hour Factor: measured PHF at stop-controlled intersections
Percent Heavy Vehicles: 2%

Performance Standard

Level of service D

Mitigation Requirement

For stop-controlled intersections operating greater than the performance standard, the intersection is evaluated further for possible improvement with a traffic signal, or geometric improvements to improve operations.

For signalized intersections operating worse than the performance standard, the intersection is evaluated further for possible improvements to improve operations if the project increases the intersection ICU value by 0.02 or more.

2.0 TRANSPORTATION SETTING

This chapter describes the transportation setting for the proposed project. Existing conditions in the traffic analysis study area are summarized, and the future circulation system planned for the UCI LRDP build-out is described.

2.1 EXISTING ROADWAY SYSTEM

The UCI campus is located in the southwest portion of the City of Irvine and is adjacent to the City of Newport Beach. The study area encompasses three intersections within the UCI campus and one intersection along the perimeter of the UCI campus and in the surrounding City of Irvine. One of the on-campus study intersections is stop-controlled, and the remaining study intersections are signalized. The off-campus study intersection is located at the intersection of the SR-73 NB Ramps and Bison Avenue and is signalized. Intersection lane configurations and intersection controls are illustrated in Figure 2-1.

Bison Avenue between SR-73 and California Avenue is designated as a primary arterial on the City of Irvine and the Orange County Master Plan of Arterial Highways (MPAH). Bison Avenue provides four travel lanes with a raised median through the study area. The speed limit is 40 mph in the vicinity. On-street parking is not allowed, and a striped bike lane is provided.

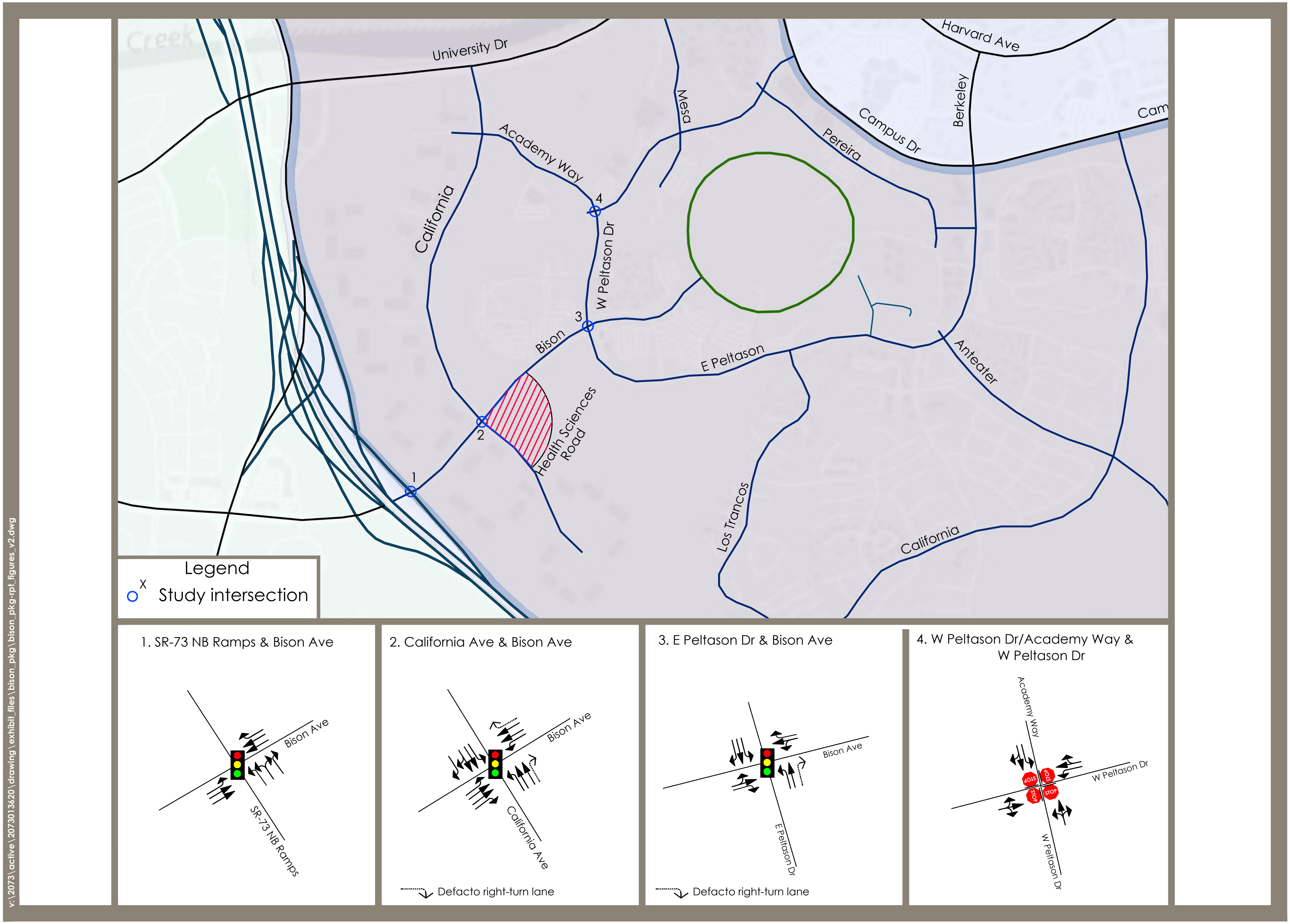
California Avenue is designated as a primary arterial and runs from University Drive to Health Sciences Road. It provides four travel lanes with a raised median through the study area. The speed limit is 35 mph from Bison Avenue to Health Science Road; 45 mph from University Drive to Bison Avenue. On-street parking is not allowed, and a striped bike lane is provided.

West Peltason Drive begins opposite Bridge Road at Campus Drive and changes names to East Peltason Drive at the Bison Avenue intersection. It loops through the UCI campus to opposite Berkeley Avenue at Campus Drive. Peltason Drive is a two-lane local street through most of the campus with a raised median east of Bison Avenue, and a four-lane local street with a raised median from Pereira Drive to Berkeley Avenue. The speed limit is 30 mph. On-street parking is not allowed. An on-street bike lane is provided.

Academy Way is a two-lane street that runs from California Ave to West Peltason Drive. The speed limit is 35 mph. On-street parking is not allowed. An on-street bike lane is provided.

2.2 EXISTING VOLUMES

Existing ADT and peak hour volumes were counted in January 2017 while classes were in session. ADT volumes were counted first for key roadway segments on campus to determine the AM and PM peak hour. The turning movement volumes were then collected at the study intersections



Stantec

Figure 2-1

Existing Intersection Lane Configurations and Traffic Control

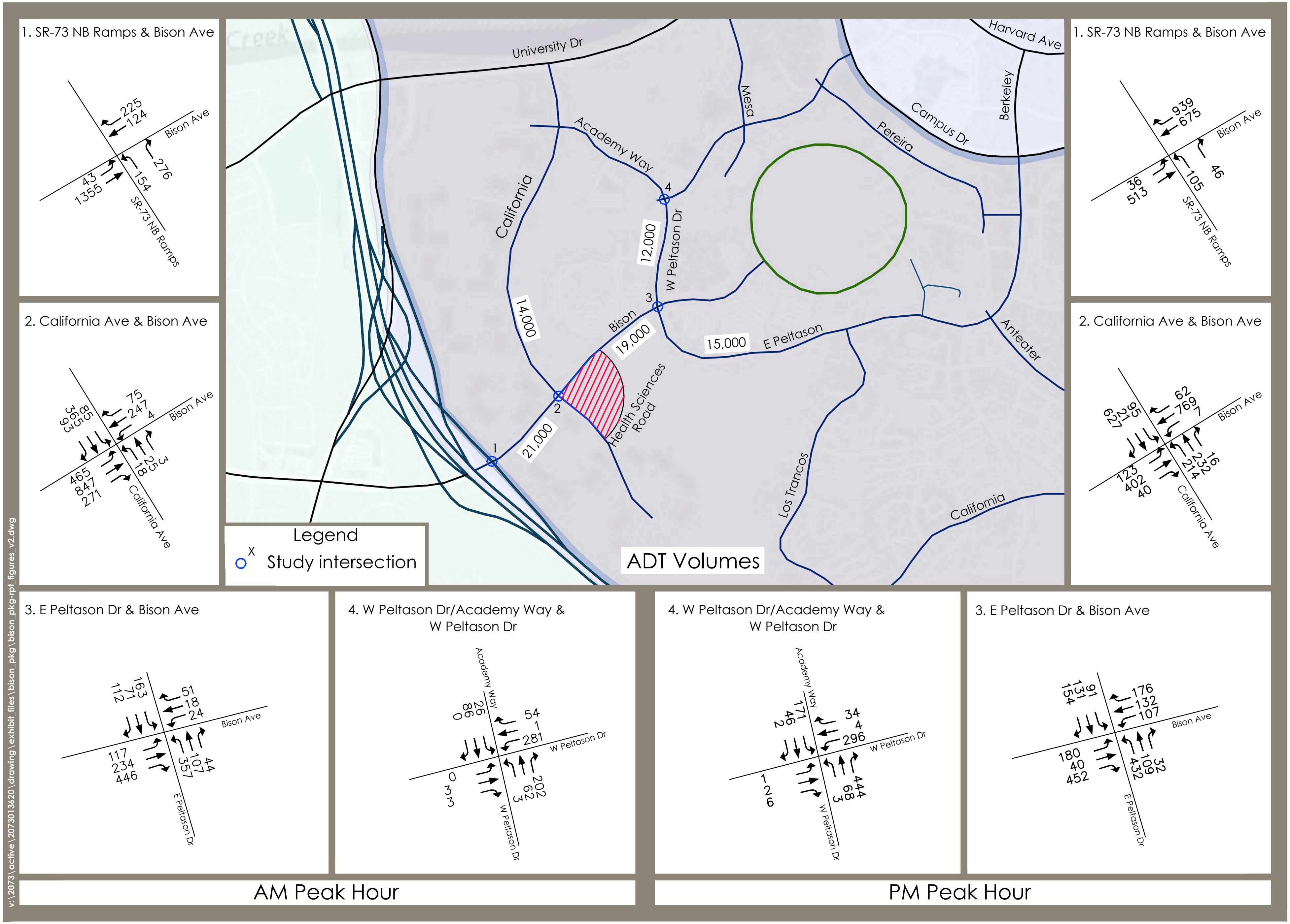


Figure 2-2

Existing Volumes

during the AM and PM peak hour which were determined from the ADT volumes. Figure 2-2 illustrates the existing study area volumes. Actual count data is included in Appendix A.

2.3 EXISTING INTERSECTION LEVELS OF SERVICE

Existing ICU values were calculated for the signalized study intersections based on the AM and PM peak hour turning movement counts presented above and existing lane configurations. The intersection of West Peltason Drive and Academy Way is an all-way stop-controlled intersection.

For the stop-controlled study intersection, the HCM delay methodology was used to estimate LOS. The average delay is rounded to the nearest second to allow for minor fluctuations in daily traffic volumes, which is appropriate for planning purposes. Existing AM and PM peak hour ICU and delay values are summarized in Table 2-1(actual ICU calculation worksheets are included in Appendix B, and HCM delay calculations worksheet are included in Appendix C).

As this table shows, the signalized study intersections currently operate at LOS A during the AM peak hour and at LOS B during PM peak hour based on the ICU methodology. The stop-controlled study intersection is currently operating at LOS C and LOS E during the AM and PM peak hour respectively. This intersection has previously been identified for installation of a traffic signal, which would improve LOS.

Table 2-1 Existing Intersection LOS Summary

Intersection	Jurisdiction	AM Peak Hour		PM Peak Hour	
		ICU/Delay	LOS	ICU/Delay	LOS
ICU Methodology – Signalized Intersections					
1. SR-73 NB Ramps & Bison Ave	Irvine	0.53	A	0.63	B
2. California Ave & Bison Ave	UCI	0.51	A	0.61	B
3. W. Peltason Dr & Bison Ave	UCI	0.52	A	0.63	B
HCM Delay Methodology – Stop-Controlled Intersections					
4. W Peltason Dr/Academy & W Peltason Dr	UCI	15 sec	C	40 sec	E

2.4 LRDP BUILD-OUT NO-PROJECT TRAFFIC FORECAST VOLUMES

The LRDP build-out volumes for on-campus intersections and off-campus intersection came from the UCI LRDP 2007 Traffic Study update. The volumes were adjusted as needed based on the existing counts. As mentioned in the previous section, the LRDP build-out volumes were obtained from the UCI MCTM and ITAM.

Figure 2-3 illustrates LRDP build-out no-project ADT volumes on mid-block links in the study area and LRDP build-out no-project AM and PM peak hour intersection volumes.

Table 2-2 summarizes the LRDP build-out no-project ICU values at the study intersections. The intersection of West Peltason Drive and Academy Way has previously been identified for installation of a traffic signal in the LRDP, which would improve LOS. Under LRDP build-out no-project conditions, with the above assumption, all study intersections will operate at acceptable LOS C or better during the AM and PM peak hours.

Table 2-2 LRDP Build-out No-Project Intersection LOS Summary

Intersection	Jurisdiction	AM Peak Hour		PM Peak Hour	
		ICU	LOS	ICU	LOS
ICU Methodology – Signalized Intersections					
1. SR-73 NB Ramps & Bison Ave	Irvine	0.59	A	0.63	B
2. California Ave & Bison Ave	UCI	0.78	C	0.72	C
3. W. Peltason Dr & Bison Ave	UCI	0.69	B	0.67	B
4. W Peltason Dr/Academy & W Peltason Dr	UCI	0.55	A	0.69	B

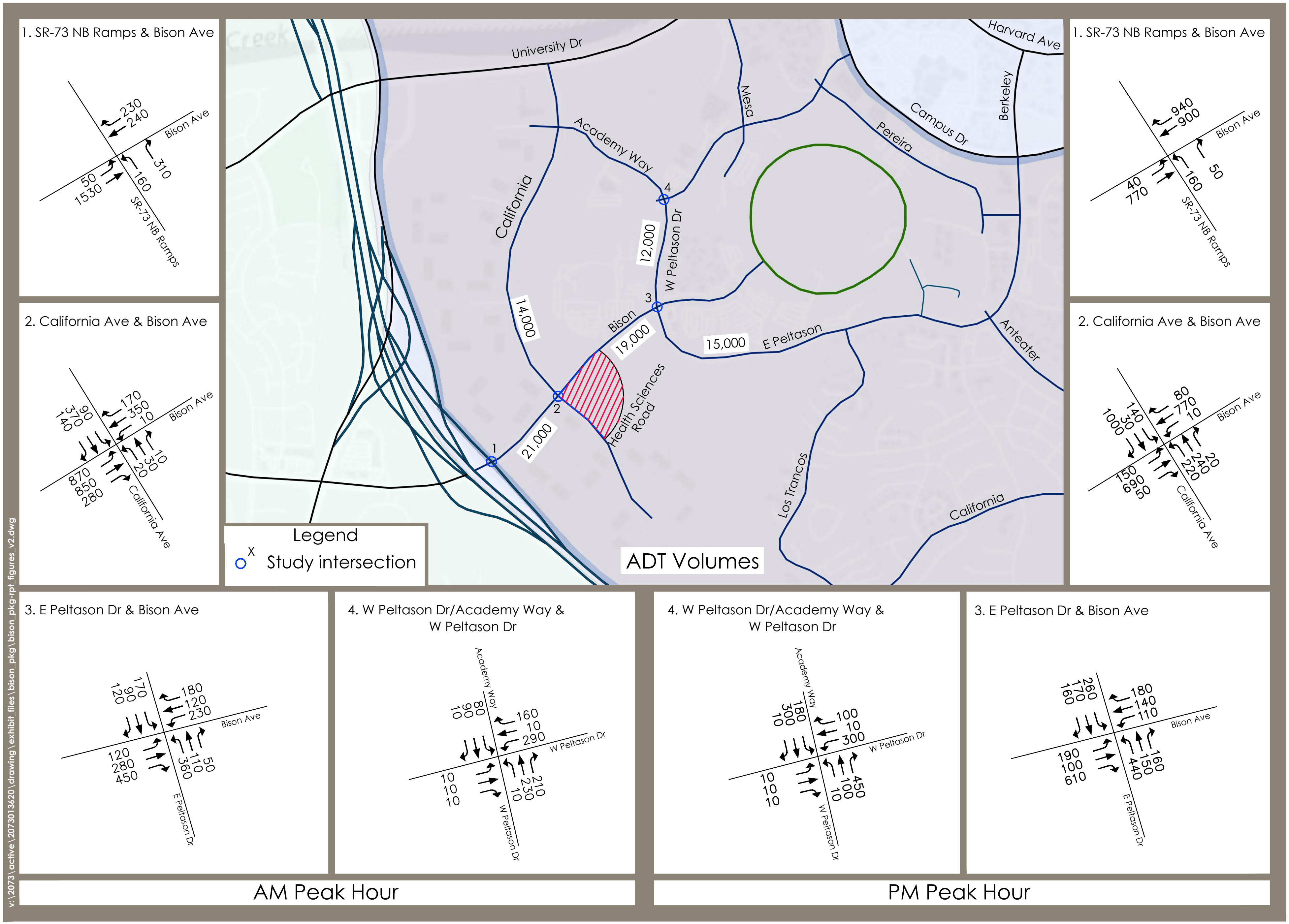


Figure 2-3

LRDP Build-Out No-Project Volumes

3.0 PROJECT DESCRIPTION

This chapter describes the traffic characteristics of the proposed project. Trip generation for the project is summarized, and the distribution of project trips on the study area circulation system is presented.

The proposed project is located in area of UCI called "West Campus" and is adjacent to the Main Campus. The deign-build project consists of the construction of an approximately 1,000 space paved parking lot. The project does not anticipate any significant increase in campus population, faculty, staff, or students as a result of this project. Also, the proposed project doesn't directly generate new traffic as the traffic to the new parking location will be a result of redistribution of traffic from other lots. However, a worst-case scenario is considered for the project build out conditions analysis by assuming all traffic at the parking lot to be new trips without giving credit to the redistribution of traffic.

The parking lot is proposed to have two driveways on the Health Sciences Road to access the parking lot. One is a full-access driveway approximately 450 feet north of California Avenue, opposite of an existing driveway that serves a gated area, the other is a right-turn-in/right-turn-out only driveway approximately 410 feet south of Bison Avenue.

Trip generation rates for the parking lot were derived based on conditions assuming the lot is fully utilized, which in practice is when a lot is approximately 85% occupied. The ADT counts collected on Bison Avenue (just east of California Avenue) were used as the basis for the inbound and outbound trip patterns for this portion of the campus. A summation of inbound trips minus outbound trips indicate that the parking lot would reach its peak occupancy in the early afternoon, around approximately 1:30 PM to 2:00 PM. The summation of all inbound and outbound trips indicates that there would be a maximum volume of approximately 5,500 ADT utilizing the lot on a typical weekday, with the AM peak volume of traffic occurring between 8:45 AM and 9:45 AM, and the PM peak volume of traffic occurring between 4:30 PM and 5:30 PM (see Table 3-1 for summary).

Table 3-1 Proposed Project Trip Generation Summary

Land Use	Amount	AM Peak Hour (8:45 AM - 9:45 AM)			PM Peak Hour (4:30 PM - 5:30 PM)			ADT
		In	Out	Total	In	Out	Total	
Trip Generation								
Bison Parking Lot	1,000 Spaces	274	127	401	100	281	381	5,503
Note: ADT = average daily traffic								

The trips accessing the parking lot will use Bison Avenue, California Avenue and West Peltason Drive to access the surrounding circulation system.

Project trip distribution was determined based on the observed traffic patterns of traffic in the area. Approximately 65 percent of project trips are oriented toward west on Bison Avenue continuing along California Avenue and SR-73. Approximately 35 percent of project trips are oriented toward east on Bison Avenue and continuing along West Peltason Drive and East Peltason Drive.

Figure 3-1 illustrates the general distribution of trips for the proposed project. Figure 3-2 illustrates the project ADT volumes on the study area roadways and the AM and PM peak hour project-generated trips based on the distribution.

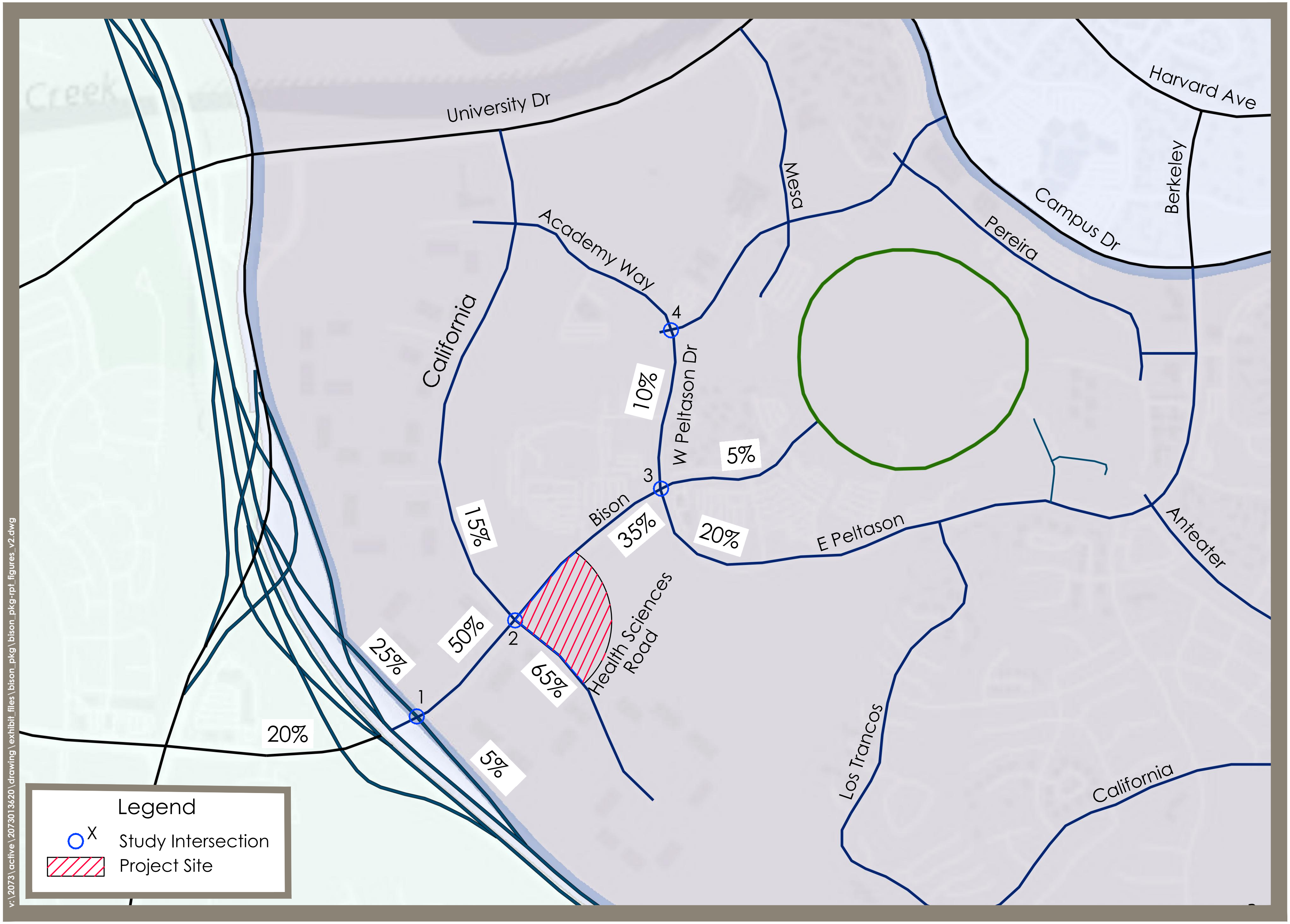


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Figure 3-1

General Project Distribution

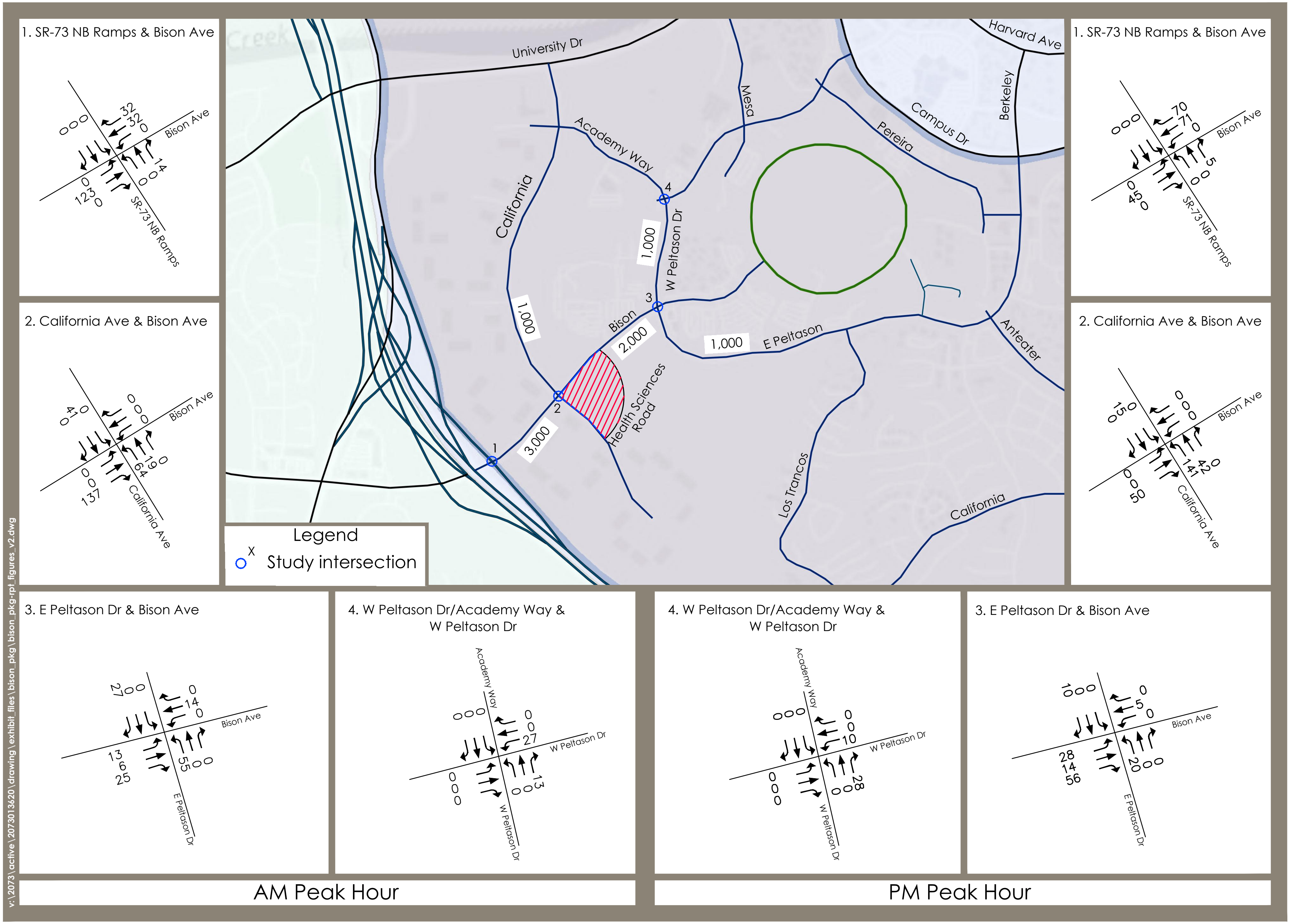

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Figure 3-2

Project Generated Volumes

4.0 IMPACT ANALYSIS

This chapter presents the traffic conditions with the project generated traffic, and evaluates the project impacts on the study intersections. Project increases resulting in significant impacts, if any, are discussed and mitigation measures are identified if necessary.

4.1 EXISTING PLUS PROJECT CONDITIONS

Impacts from the full project are analyzed under existing conditions. Existing-plus-project peak hour volumes were obtained by adding the project-generated peak hour trips to the existing intersection turning movement volumes at the study intersections. As noted in Chapter 3.0, a worst-case scenario is considered for the project analysis by assuming all the traffic at the parking lot to be new trips without giving credit to the redistribution of traffic to this location from other lots.

Figure 4-1 illustrates the existing-plus-project ADT volumes on the mid-block links in the study area and the peak hour volumes at the study intersections. The existing and existing-plus-project LOS based on existing lane configurations are summarized in Table 4-1 (the ICU calculation worksheets are included in Appendix B, and HCM delay calculation worksheets are included in Appendix C).

Table 4-1 Existing Plus Project Intersection LOS Summary

	Existing				Existing + Project			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Intersection	**ICU/Delay**	**LOS**	**ICU/Delay**	**LOS**	**ICU/Delay**	**LOS**	**ICU/Delay**	**LOS**
ICU Methodology – Signalized Intersections								
1. SR-73 NB Ramps & Bison Ave	0.53	A	0.63	B	0.57	A	0.67	B
2. California Ave & Bison Ave	0.51	A	0.61	B	0.56	A	0.69	B
3. W. Peltason Dr & Bison Ave	0.52	A	0.63	B	0.56	A	0.66	B
HCM Delay Methodology – Stop-Controlled Intersections								
4. W Peltason Dr/Academy & W Peltason Dr	15 sec	C	40 sec	E	17 sec	C	47 sec	E

The signalized intersections continue to operate at LOS A during the AM and LOS B during the PM peak hours with the addition of the proposed project traffic based on the ICU methodology. The project would add less than 0.04 to the ICU value at the intersections, and the project has no significant impact.

The stop-controlled study intersection of West Peltason Drive and Academy Way continues to operate at LOS C during the AM and at LOS E during the PM peak hour with the addition of the proposed project traffic based on the HCM delay methodology. Although the intersection

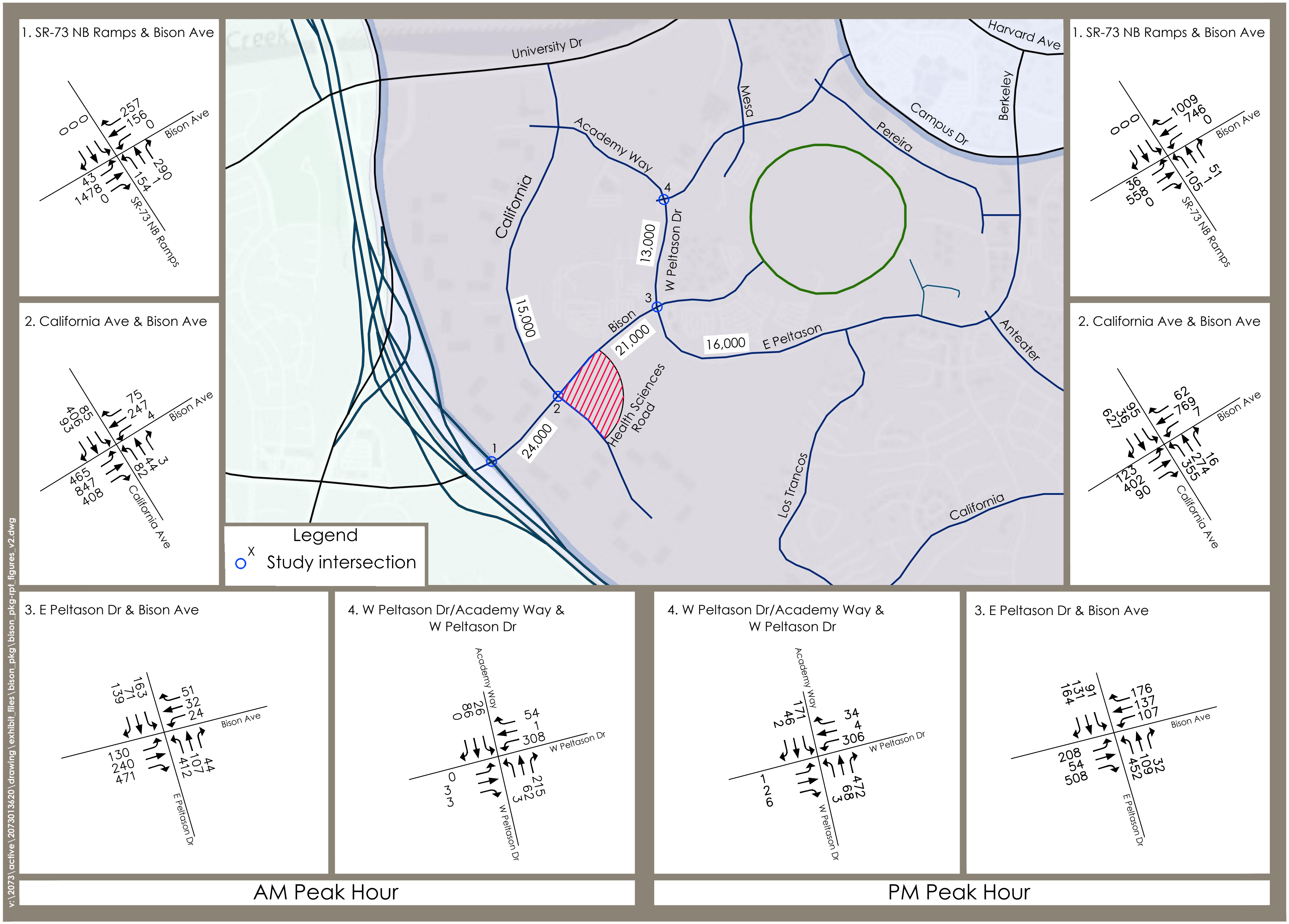

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Figure 4-1

Existing-Plus-Project Volumes

operates at LOS E as a stop-controlled intersection during existing conditions, it has previously been identified for installation of a traffic signal in LRDP, which would improve LOS.

4.2 LRDP BUILD-OUT WITH-PROJECT ANALYSIS

Figure 4-2 illustrates the LRDP build-out with-project ADT and peak hour volumes. The LRDP build-out with and without project ICU values and LOS of the study intersections are summarized in Table 4-2 below. As noted in Chapter 3.0, a worst-case scenario is considered for the project analysis by assuming all traffic at the parking lot to be new trips without giving credit to the redistribution of traffic to this location from other lots.

The intersections operate at an acceptable LOS C or better during the AM and PM peak hours except the intersection of California Avenue and Bison Avenue which operates at LOS D during AM peak hour with the addition of the project. Even though the level of service changed from LOS C to LOS D it is not considered a significant impact because the performance standard applied in this study is LOS D. Therefore, the project has no significant impact on the study intersections under LRDP build-out conditions and no mitigation is required.

Table 4-2 LRDP Build-out with-Project Intersection LOS Summary

	LRDP Build-out No-Project				LRDP Build-out with-Project			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Intersection	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
ICU Methodology – Signalized Intersections								
1. SR-73 NB Ramps & Bison Ave	0.59	A	0.63	B	0.64	B	0.67	B
2. California Ave & Bison Ave	0.78	C	0.72	C	0.83	D	0.80	C
3. W. Peltason Dr & Bison Ave	0.69	B	0.67	B	0.73	C	0.70	B
4. W Peltason Dr/Academy & W Peltason Dr	0.55	A	0.69	B	0.58	A	0.71	C

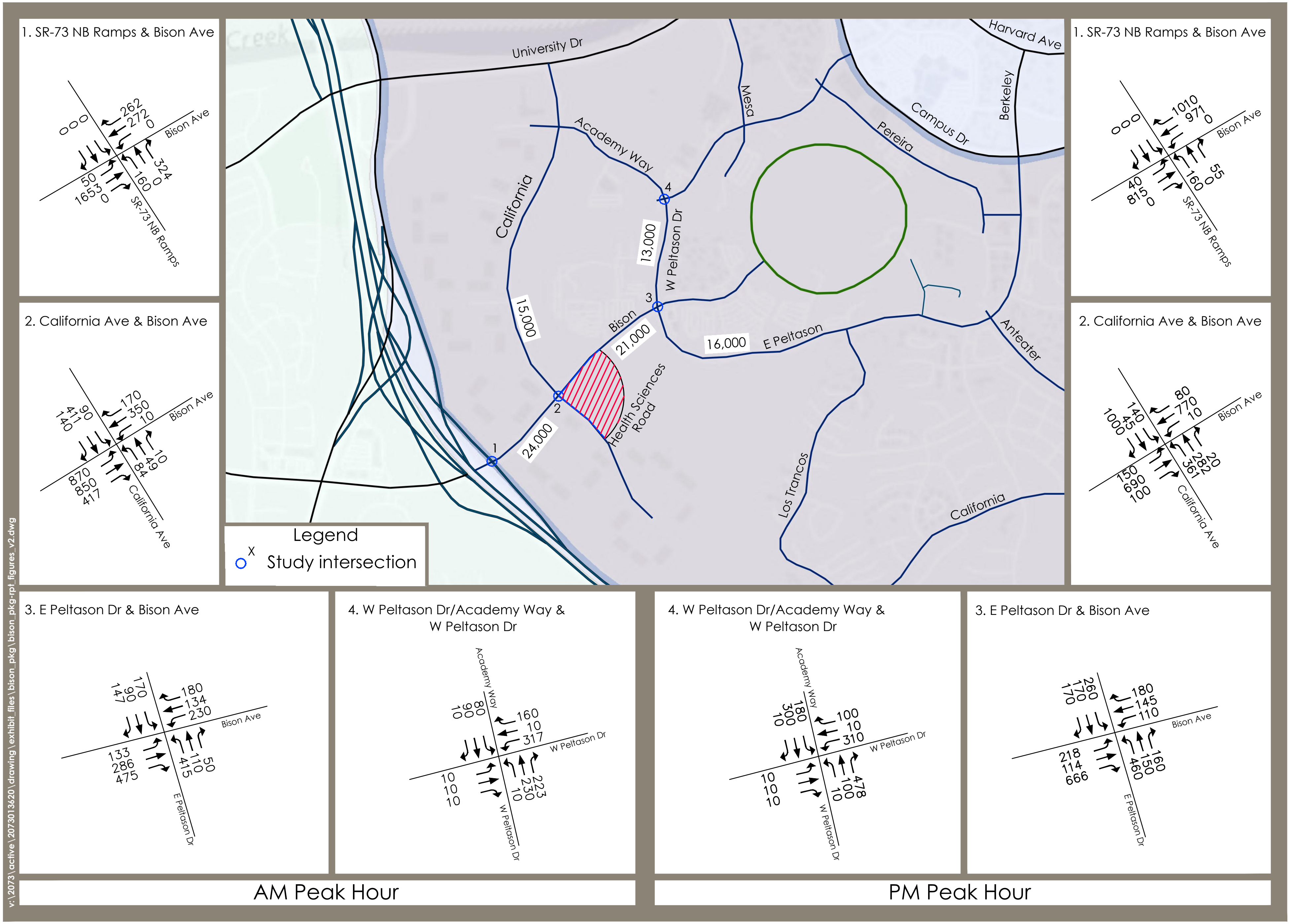


Figure 4-2

LRDP Build-out with-Project Volumes

5.0 CONCLUSIONS

The proposed Bison parking lot project would consist of the construction of an approximately 1,000 space paved parking lot. The purpose of this study is to determine the amount of traffic generated by the proposed project and to analyze the impacts of the project on the affected portions of the circulation system.

The UCI campus is located in the southwest portion of the City of Irvine and is adjacent to the City of Newport Beach. The project site is located in the area generally bounded by Bison Avenue, California Avenue and Health Sciences Road. No significant increase in campus population, faculty, staff, or students is anticipated as a result of this project. The parking lot would be constructed to accommodate current and future parking needs and to ease the loss of parking spaces in other areas on campus.

Since the proposed project doesn't directly generate new traffic (i.e., the parking lot results in a redistribution of traffic to the new parking location), the study area is focused on the roadways in the immediate vicinity of the parking lot. Outside of this immediate area, and on roadways within the neighboring jurisdictions of the City of Newport Beach and Irvine, traffic volumes are not anticipated to change appreciably due to the proposed project. However, a worst-case scenario is considered for the project analysis by assuming all traffic at the parking lot to be new trips without giving credit to the redistribution of traffic to this location from other lots.

The project would generate approximately 5,503 trips daily, of which 401 would occur during the AM peak hour and 381 would occur during the PM peak hour. These peak hour trips were assigned to the surrounding street system and added to existing traffic volumes and to the model forecasts to determine the project impacts during existing conditions and LRDP build-out conditions.

Under existing conditions, all signalized study intersections operate at LOS B or better during the AM and PM peak hours based on the ICU values. The stop-controlled study intersection at West Peltason Drive and Academy Way currently operates at LOS C and LOS E during the AM and PM peak hour respectively. The LOS remains the same even with the addition of the project. This intersection has been identified for the installation of a traffic signal in the 2007 LRDP which would improve LOS.

Under LRDP build-out conditions, all study intersections would operate at LOS C or better except the intersection of California Avenue and Bison Avenue which operates at LOS D with the addition of the project during the AM peak hour based on ICU values. Even though the level of service changed from LOS C to LOS D, it is not considered a significant impact because the performance standard applied in this study is LOS D. Therefore, it can be concluded that the project has less than significant impact on the study intersections.

In conclusion, the proposed project has no significant impact on the surrounding circulation system under existing or LRDP build-out conditions, and no mitigation is required.

APPENDICES

Appendix A COUNT DATA

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: IRVINE
N-S Direction: SR-73 NB RAMPS
E-W Direction: BISON AVENUE

File Name : H1701018
Site Code : 00000000
Start Date : 1/25/2017

Groups Printed- Turning Movements

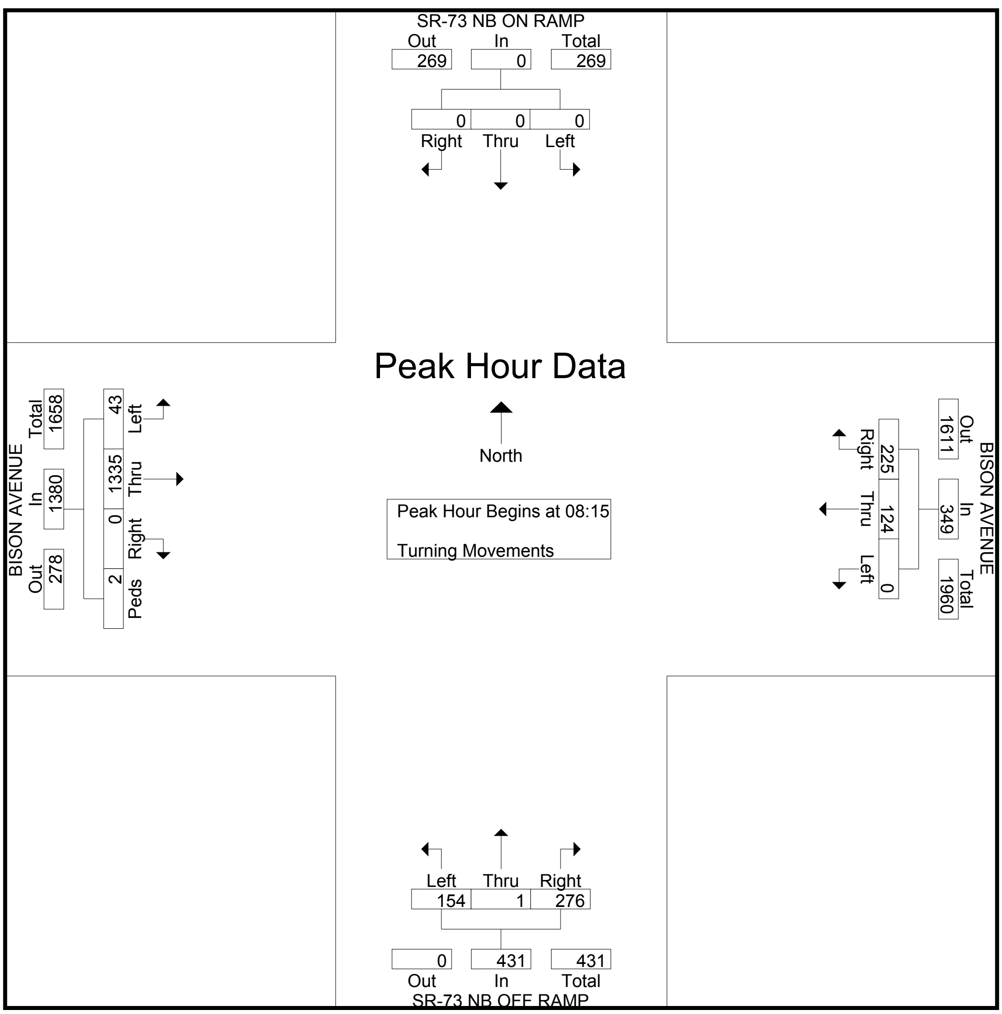
	SR-73 NB ON RAMP Southbound			BISON AVENUE Westbound			SR-73 NB OFF RAMP Northbound			BISON AVENUE Eastbound				
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Peds	Int. Total
08:00	0	0	0	51	25	0	77	1	32	0	277	16	0	479
08:15	0	0	0	52	22	0	66	0	35	0	280	11	0	466
08:30	0	0	0	66	28	0	79	1	45	0	333	13	1	566
08:45	0	0	0	50	37	0	80	0	48	0	392	11	1	619
Total	0	0	0	219	112	0	302	2	160	0	1282	51	2	2130
09:00	0	0	0	57	37	0	51	0	26	0	330	8	0	509
09:15	0	0	0	59	35	0	42	0	32	0	270	3	1	442
09:30	0	0	0	58	32	0	30	0	29	0	314	12	0	475
09:45	0	0	0	66	32	0	27	0	31	0	250	6	0	412
Total	0	0	0	240	136	0	150	0	118	0	1164	29	1	1838
*** BREAK ***														
16:30	0	0	0	216	107	0	6	0	28	0	112	5	0	474
16:45	0	0	0	209	122	0	2	0	21	0	131	11	2	498
Total	0	0	0	425	229	0	8	0	49	0	243	16	2	972
17:00	0	0	0	325	205	0	4	0	23	0	104	10	1	672
17:15	0	0	0	208	187	0	11	0	21	0	135	11	0	573
17:30	0	0	0	224	150	0	16	0	20	0	133	11	1	555
17:45	0	0	0	182	133	0	15	1	41	0	141	4	2	519
Total	0	0	0	939	675	0	46	1	105	0	513	36	4	2319
18:00	0	0	0	203	145	0	2	0	21	0	139	12	1	523
18:15	0	0	0	179	106	0	2	0	30	0	126	7	0	450
Grand Total	0	0	0	2205	1403	0	510	3	483	0	3467	151	10	8232
Apprch %	0	0	0	61.1	38.9	0	51.2	0.3	48.5	0	95.6	4.2	0.3	
Total %	0	0	0	26.8	17	0	6.2	0	5.9	0	42.1	1.8	0.1	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: IRVINE
N-S Direction: SR-73 NB RAMPS
E-W Direction: BISON AVENUE

File Name : H1701018
Site Code : 00000000
Start Date : 1/25/2017

	SR-73 NB ON RAMP Southbound				BISON AVENUE Westbound				SR-73 NB OFF RAMP Northbound				BISON AVENUE Eastbound					
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 08:00 to 09:45 - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 08:15																		
08:15	**0**	**0**	**0**	**0**	**52**	**22**	**0**	**74**	**66**	**0**	**35**	**101**	**0**	**280**	**11**	**0**	**291**	**466**
08:30	0	0	0	0	66	28	0	94	79	1	45	125	0	333	13	**1**	347	566
08:45	0	0	0	0	50	**37**	0	87	**80**	0	**48**	**128**	0	**392**	11	1	**404**	**619**
09:00	**0**	**0**	**0**	**0**	**57**	**37**	**0**	**94**	**51**	**0**	**26**	**77**	**0**	**330**	**8**	**0**	**338**	**509**
Total Volume	0	0	0	0	225	124	0	349	276	1	154	431	0	1335	43	2	1380	2160
% App. Total	0	0	0		64.5	35.5	0		64	0.2	35.7		0	96.7	3.1	0.1		
PHF	.000	.000	.000	.000	.852	.838	.000	.928	.863	.250	.802	.842	.000	.851	.827	.500	.854	.872

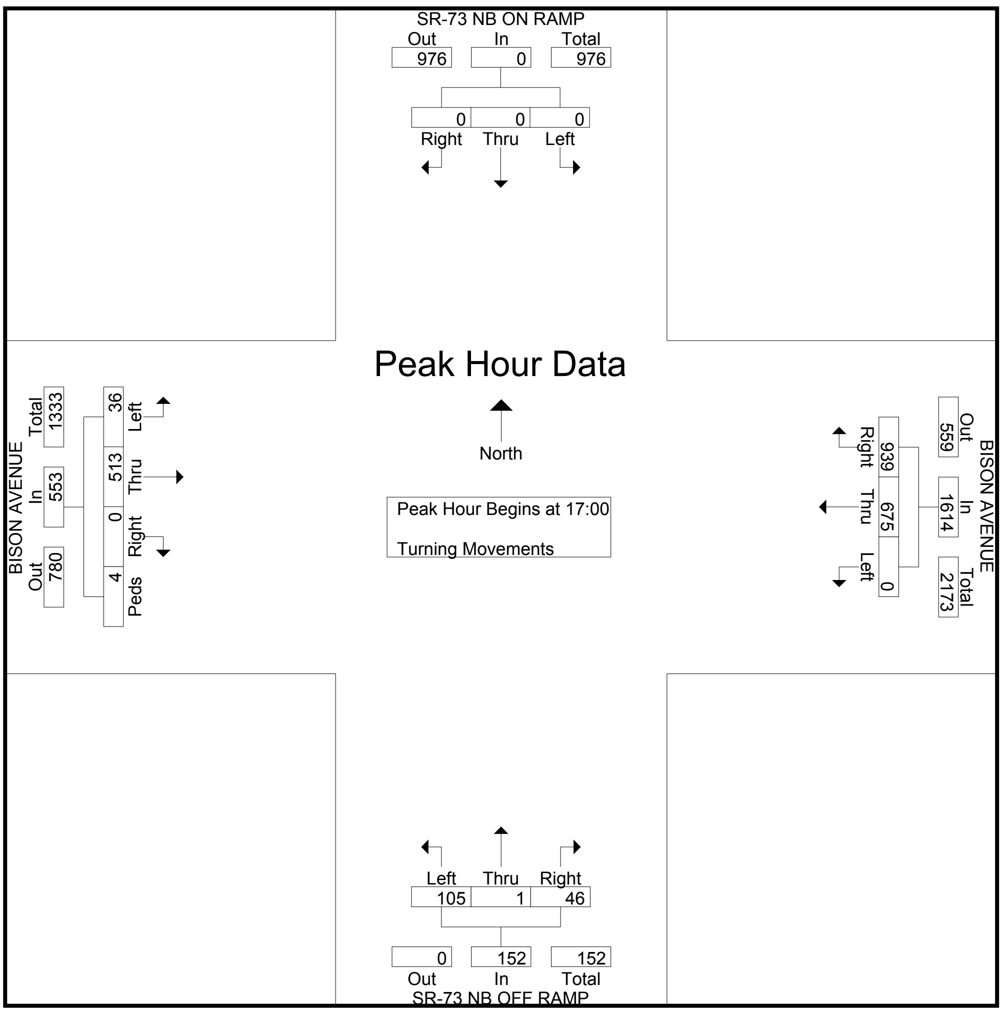


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: IRVINE
N-S Direction: SR-73 NB RAMPS
E-W Direction: BISON AVENUE

File Name : H1701018
Site Code : 00000000
Start Date : 1/25/2017
Page No : 3

	SR-73 NB ON RAMP Southbound				BISON AVENUE Westbound				SR-73 NB OFF RAMP Northbound				BISON AVENUE Eastbound					
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:30 to 18:15 - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 17:00																		
17:00	0	0	0	0	325	205	0	530	4	0	23	27	0	104	10	1	115	672
17:15	0	0	0	0	208	187	0	395	11	0	21	32	0	135	**11**			
17:30	0	0	0	0	224	150	0	374	**16**	0	20	36	0	133	11	1	145	555
17:45	0	0	0	0	182	133	0	315	15	**1**	**41**	**57**	0	**141**	4	**2**	**147**	519
Total Volume	0	0	0	0	939	675	0	1614	46	1	105	152	0	513	36	4	553	2319
% App. Total	0	0	0		58.2	41.8	0		30.3	0.7	69.1		0	92.8	6.5	0.7		
PHF	.000	.000	.000	.000	.722	.823	.000	.761	.719	.250	.640	.667	.000	.910	.818	.500	.940	.863



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: IRVINE
N-S Direction: CALIFORNIA AVENUE
E-W Direction: BISON AVENUE

File Name : H1701019
Site Code : 00000000
Start Date : 1/25/2017
Page No : 1

Groups Printed- Turning Movements

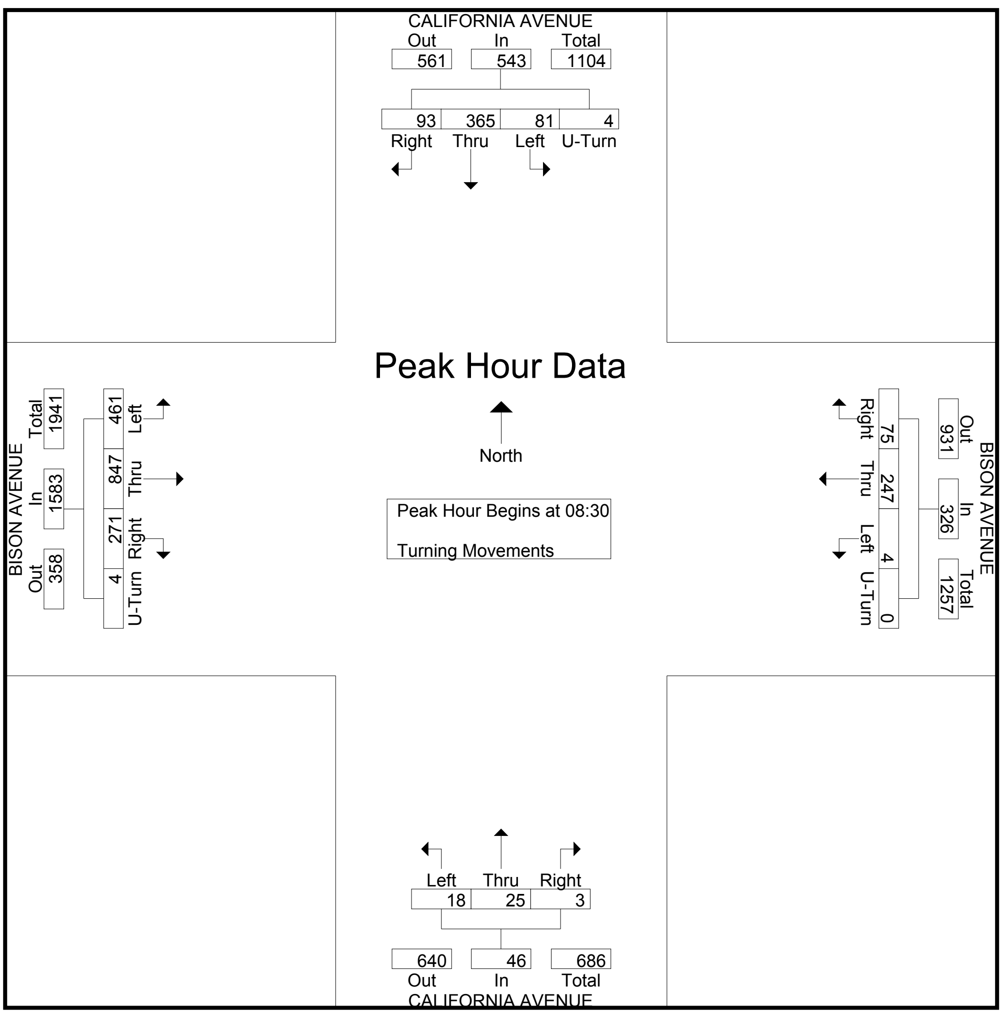
	CALIFORNIA AVENUE Southbound				BISON AVENUE Westbound				CALIFORNIA AVENUE Northbound			BISON AVENUE Eastbound				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	Right	Thru	Left	U-Turn	Int. Total
08:00	10	42	17	1	16	62	0	0	0	2	4	39	159	148	0	500
08:15	14	61	11	2	22	57	5	0	3	2	5	49	173	135	1	540
08:30	19	62	16	0	17	66	0	0	1	1	7	50	215	138	1	593
08:45	16	73	25	3	21	63	2	0	1	4	2	59	271	148	2	690
Total	59	238	69	6	76	248	7	0	5	9	18	197	818	569	4	2323
09:00	31	104	17	1	24	63	2	0	0	9	3	75	187	102	1	619
09:15	27	126	23	0	13	55	0	0	1	11	6	87	174	73	0	596
09:30	22	100	24	2	14	60	1	0	1	3	10	64	190	62	0	553
09:45	31	89	21	0	19	62	0	0	1	8	3	55	193	49	1	532
Total	111	419	85	3	70	240	3	0	3	31	22	281	744	286	2	2300
*** BREAK ***																
16:30	130	6	18	1	20	155	2	0	1	51	39	2	99	16	1	541
16:45	135	8	23	1	18	153	0	0	4	47	39	12	103	17	1	561
Total	265	14	41	2	38	308	2	0	5	98	78	14	202	33	2	1102
17:00	222	9	31	1	14	252	0	2	4	62	58	8	79	22	2	766
17:15	156	8	30	0	20	175	2	0	3	44	54	8	118	17	0	635
17:30	150	2	21	1	21	182	1	0	4	57	49	9	104	43	0	644
17:45	99	2	10	1	7	160	0	2	5	69	53	15	101	38	1	563
Total	627	21	92	3	62	769	3	4	16	232	214	40	402	120	3	2608
18:00	112	2	15	1	6	190	0	0	3	73	52	5	113	25	0	597
18:15	81	2	7	0	11	147	0	1	2	63	52	4	110	14	0	494
Grand Total	1255	696	309	15	263	1902	15	5	34	506	436	541	2389	1047	11	9424
Apprch %	55.2	30.6	13.6	0.7	12	87	0.7	0.2	3.5	51.8	44.7	13.6	59.9	26.3	0.3	
Total %	13.3	7.4	3.3	0.2	2.8	20.2	0.2	0.1	0.4	5.4	4.6	5.7	25.4	11.1	0.1	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: IRVINE
N-S Direction: CALIFORNIA AVENUE
E-W Direction: BISON AVENUE

File Name : H1701019
Site Code : 00000000
Start Date : 1/25/2017
Page No : 2

	CALIFORNIA AVENUE Southbound					BISON AVENUE Westbound					CALIFORNIA AVENUE Northbound				BISON AVENUE Eastbound					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 08:00 to 09:45 - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 08:30																				
08:30	19	62	16	0	97	17	**66**				**1**		**7**							
08:45	16	73	**25**	**3**	117	21	63	**2**	0	86	1	4	2	7	59	**271**	**148**	**2**	**480**	**690**
09:00	**31**	104	17	1	153	**24**	63	2	0	**89**	0	9	3	12	75	187	102	1	365	619
09:15	27	**126**	23	0	**176**	13	55	0	0	68	1	**11**	6	**18**	**87**	174	73	0	334	596
Total Volume	93	365	81	4	543	75	247	4	0	326	3	25	18	46	271	847	461	4	1583	2498
% App. Total	17.1	67.2	14.9	0.7		23	75.8	1.2	0		6.5	54.3	39.1		17.1	53.5	29.1	0.3		
PHF	.750	.724	.810	.333	.771	.781	.936	.500	.000	.916	.750	.568	.643	.639	.779	.781	.779	.500	.824	.905

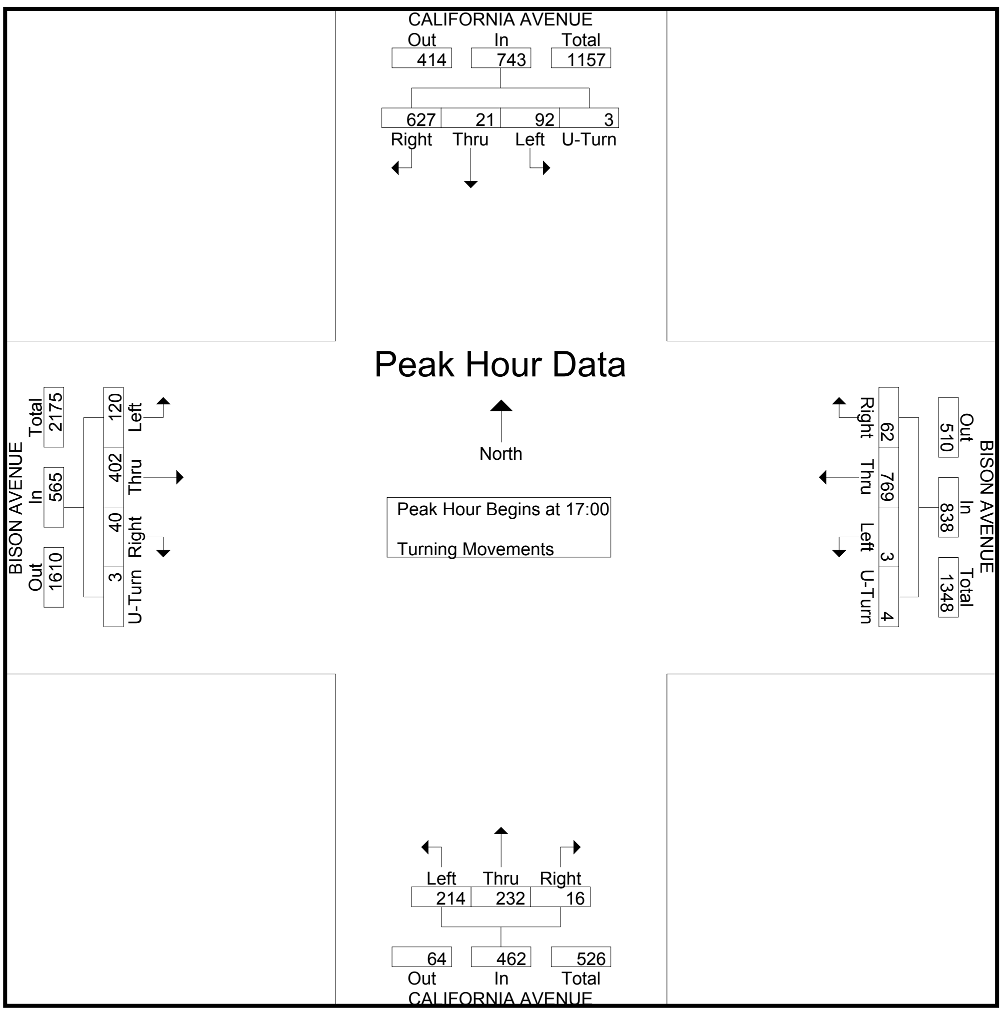


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: IRVINE
N-S Direction: CALIFORNIA AVENUE
E-W Direction: BISON AVENUE

File Name : H1701019
Site Code : 00000000
Start Date : 1/25/2017

	CALIFORNIA AVENUE Southbound					BISON AVENUE Westbound					CALIFORNIA AVENUE Northbound					BISON AVENUE Eastbound					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 16:30 to 18:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	222	9	31	1	**263**	14	**252**	0	**2**	**268**	4	62	**58**		124	8	79	22	**2**	111	**766**
17:15	**156**	**8**	**30**	**0**	**194**	**20**	**175**	**2**	0	197	3	44	54		101	8	**118**	17	0	143	635
17:30	150	2	21	1	174	**21**	182	1	0	204	4	57	49		110	9	104	**43**	0	**156**	644
17:45	99	2	10	1	112	7	160	0	2	169	**5**	**69**	53		**127**	**15**	101	38	1	155	563
Total Volume	627	21	92	3	743	62	769	3	4	838	16	232	214		462	40	402	120	3	565	2608
% App. Total	84.4	2.8	12.4	0.4		7.4	91.8	0.4	0.5		3.5	50.2	46.3			7.1	71.2	21.2	0.5		
PHF	.706	.583	.742	.750	.706	.738	.763	.375	.500	.782	.800	.841	.922		.909	.667	.852	.698	.375	.905	.851



City: IRVINE
N-S Direction: PELTASON DRIVE
E-W Direction: BISON AVENUE

File Name : H1701020
Site Code : 00000000
Start Date : 1/25/2017
Page No : 1

Groups Printed- Turning Movements

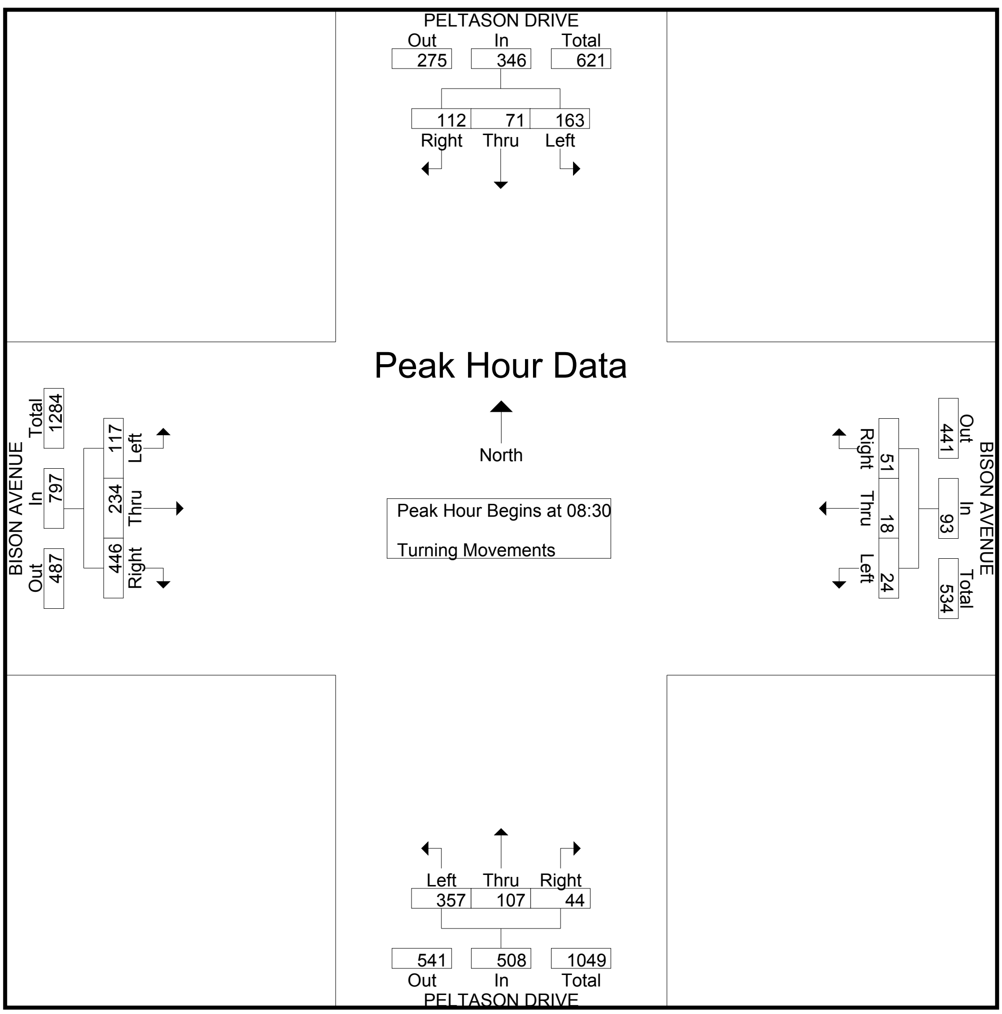
	PELTASON DRIVE Southbound			BISON AVENUE Westbound			PELTASON DRIVE Northbound			BISON AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
08:00	22	17	29	14	4	6	3	25	89	92	33	37	371
08:15	26	8	23	4	7	3	5	21	76	94	36	27	330
08:30	25	19	43	7	5	4	15	19	81	113	65	32	428
08:45	25	21	64	19	4	8	12	43	94	139	78	43	550
Total	98	65	159	44	20	21	35	108	340	438	212	139	1679
09:00	30	14	22	14	6	9	10	24	99	113	40	18	399
09:15	32	17	34	11	3	3	7	21	83	81	51	24	367
09:30	27	15	42	6	11	3	8	20	70	108	69	20	399
09:45	34	21	62	28	19	12	20	41	87	81	63	25	493
Total	123	67	160	59	39	27	45	106	339	383	223	87	1658
*** BREAK ***													
16:30	45	19	14	34	30	16	9	27	83	97	15	22	411
16:45	25	35	38	51	35	23	11	32	93	108	12	34	497
Total	70	54	52	85	65	39	20	59	176	205	27	56	908
17:00	51	40	19	59	52	32	12	37	149	121	6	37	615
17:15	40	27	17	40	19	27	2	26	93	117	10	53	471
17:30	38	29	17	26	26	25	7	14	97	106	12	56	453
17:45	26	23	27	32	24	36	20	34	90	100	11	46	469
Total	155	119	80	157	121	120	41	111	429	444	39	192	2008
18:00	39	26	9	58	45	42	14	24	92	109	10	39	507
18:15	18	29	12	30	24	24	9	27	81	112	12	43	421
Grand Total	503	360	472	433	314	273	164	435	1457	1691	523	556	7181
Apprch %	37.7	27	35.4	42.5	30.8	26.8	8	21.2	70.9	61	18.9	20.1	
Total %	7	5	6.6	6	4.4	3.8	2.3	6.1	20.3	23.5	7.3	7.7	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: IRVINE
N-S Direction: PELTASON DRIVE
E-W Direction: BISON AVENUE

File Name : H1701020
Site Code : 00000000
Start Date : 1/25/2017
Page No : 2

	PELTASON DRIVE Southbound				BISON AVENUE Westbound				PELTASON DRIVE Northbound				BISON AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 08:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:30																	
08:30	25	19	43	87	7	5	4	16	**15**	19	81	115	113	65	32	210	428
08:45	25	**21**	**64**	**110**	**19**	4	8	**31**	12	**43**	94	**149**	**139**	**78**	**43**	**260**	**550**
09:00	30	14	22	66	14	**6**	**9**	29	10	24	**99**	133	113	40	18	171	399
09:15	**32**	17	34	83	11	3	3	17	7	21	83	111	81	51	24	156	367
Total Volume	112	71	163	346	51	18	24	93	44	107	357	508	446	234	117	797	1744
% App. Total	32.4	20.5	47.1		54.8	19.4	25.8		8.7	21.1	70.3		56	29.4	14.7		
PHF	.875	.845	.637	.786	.671	.750	.667	.750	.733	.622	.902	.852	.802	.750	.680	.766	.793

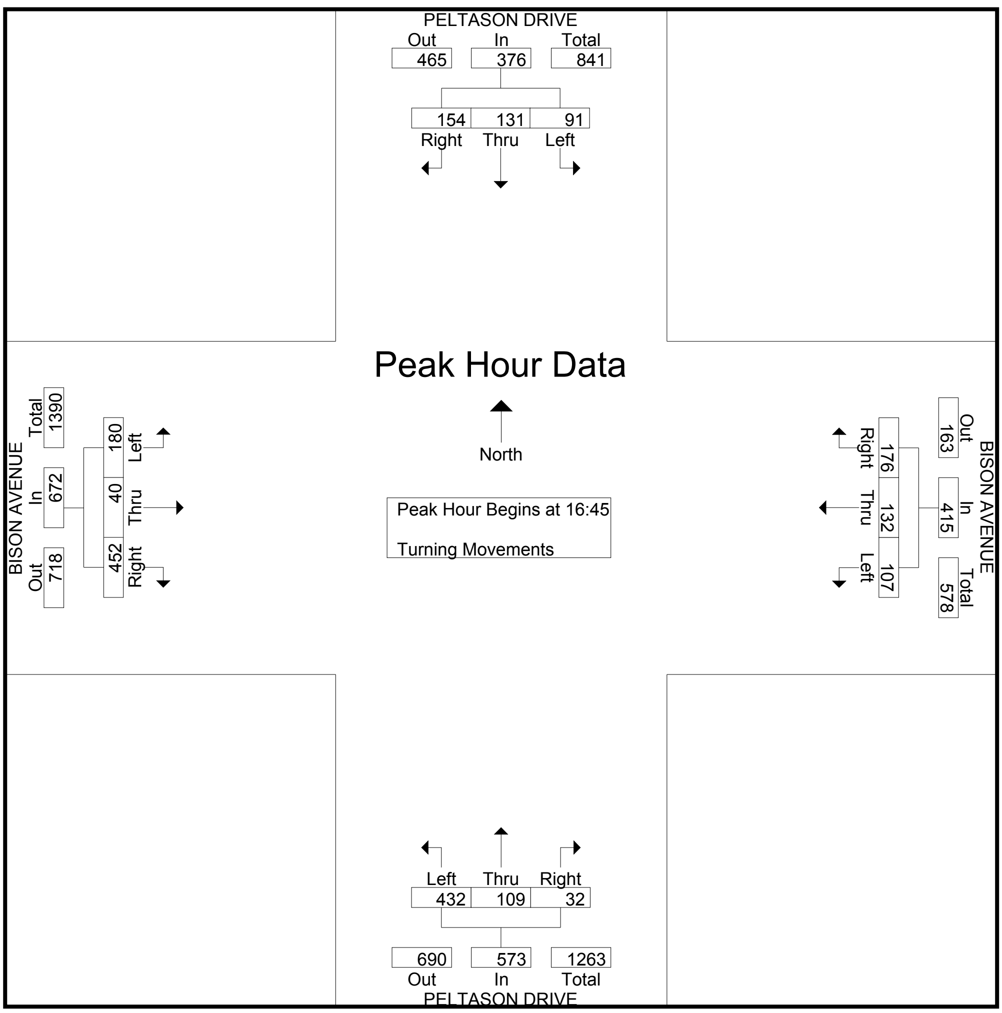


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: IRVINE
N-S Direction: PELTASON DRIVE
E-W Direction: BISON AVENUE

File Name : H1701020
Site Code : 00000000
Start Date : 1/25/2017
Page No : 3

	PELTASON DRIVE Southbound				BISON AVENUE Westbound				PELTASON DRIVE Northbound				BISON AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:30 to 18:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	25	35	**38**	98	51	35	23	109	11	32	93	136	108	**12**	34	154	497
17:00	**51**	**40**	19	**110**	**59**	**52**	**32**	**143**	**12**	**37**	**149**	**198**	**121**	6	37	164	**615**
17:15	40	27	17	84	40	19	27	86	2	26	93	121	117	10	53	**180**	471
17:30	38	29	17	84	26	26	25	77	7	14	97	118	106	12	**56**	174	453
Total Volume	154	131	91	376	176	132	107	415	32	109	432	573	452	40	180	672	2036
% App. Total	41	34.8	24.2		42.4	31.8	25.8		5.6	19	75.4		67.3	6	26.8		
PHF	.755	.819	.599	.855	.746	.635	.836	.726	.667	.736	.725	.723	.934	.833	.804	.933	.828



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: IRVINE
N-S Direction: W. PELTASON DR/ ACADEMY
E-W Direction: W. PELTASON DRIVE

File Name : H1701021
Site Code : 00000000
Start Date : 1/25/2017
Page No : 1

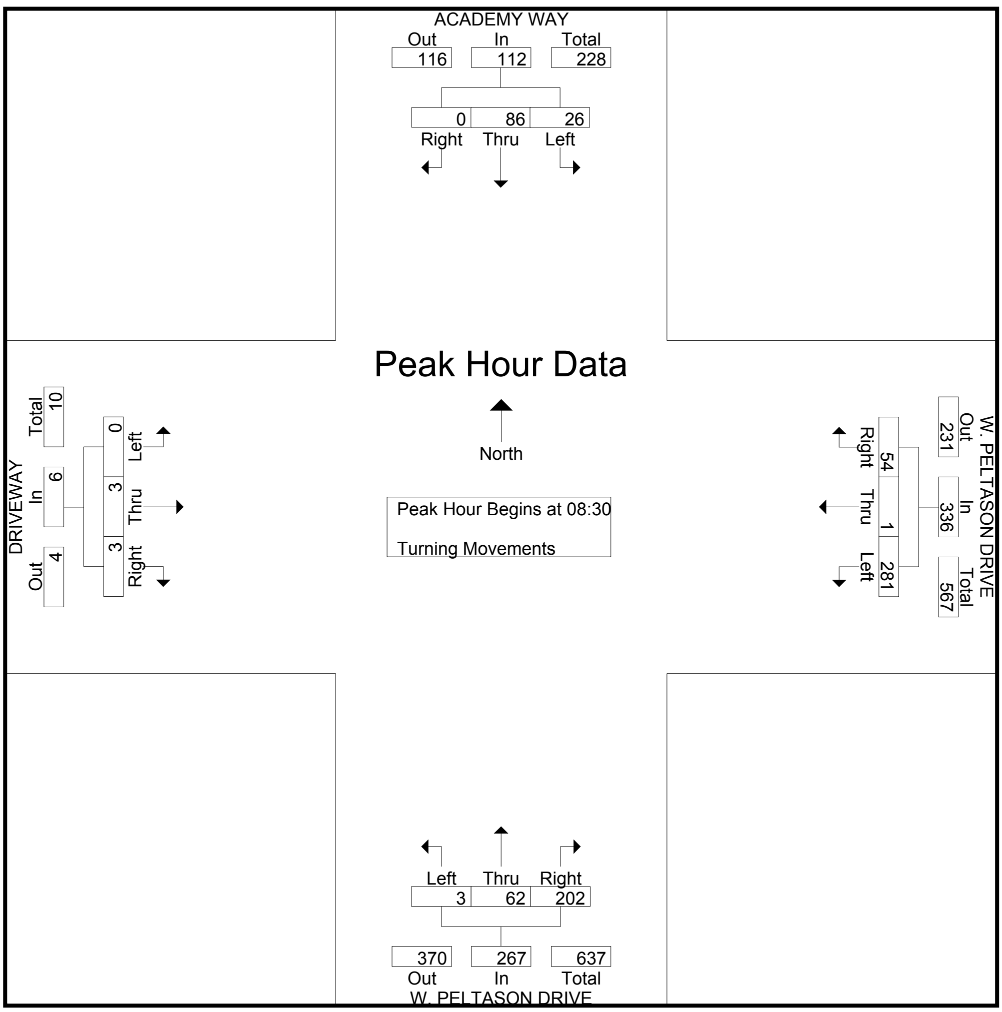
Groups Printed- Turning Movements

	ACADEMY WAY Southbound			W. PELTASON DRIVE Westbound			W. PELTASON DRIVE Northbound			DRIVEWAY Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
08:00	0	17	6	11	3	53	52	14	0	0	4	0	160
08:15	0	11	7	8	1	55	35	14	1	0	0	1	133
08:30	0	29	5	11	0	69	47	10	0	1	1	0	173
08:45	0	20	5	19	0	92	66	24	0	0	0	0	226
Total	0	77	23	49	4	269	200	62	1	1	5	1	692
09:00	0	15	9	16	1	55	49	13	3	2	1	0	164
09:15	0	22	7	8	0	65	40	15	0	0	1	0	158
09:30	0	29	11	8	2	64	35	5	0	0	1	1	156
09:45	0	23	12	8	0	93	80	17	2	0	0	0	235
Total	0	89	39	40	3	277	204	50	5	2	3	1	713
*** BREAK ***													
16:30	0	12	15	10	2	70	70	18	1	1	1	1	201
16:45	0	7	20	4	0	80	107	15	0	0	1	0	234
Total	0	19	35	14	2	150	177	33	1	1	2	1	435
17:00	1	15	43	10	1	84	128	23	1	3	1	0	310
17:15	1	14	53	11	1	69	105	17	2	3	0	0	276
17:30	0	8	32	8	2	72	102	13	0	0	0	1	238
17:45	0	9	43	5	0	71	109	15	0	0	1	0	253
Total	2	46	171	34	4	296	444	68	3	6	2	1	1077
18:00	0	3	28	9	2	65	108	22	0	0	1	0	238
18:15	0	13	17	9	1	46	95	18	0	0	0	0	199
Grand Total	2	247	313	155	16	1103	1228	253	10	10	13	4	3354
Apprch %	0.4	44	55.7	12.2	1.3	86.6	82.4	17	0.7	37	48.1	14.8	
Total %	0.1	7.4	9.3	4.6	0.5	32.9	36.6	7.5	0.3	0.3	0.4	0.1	

City: IRVINE
N-S Direction: W. PELTASON DR/ ACADEMY
E-W Direction: W. PELTASON DRIVE

File Name : H1701021
Site Code : 00000000
Start Date : 1/25/2017
Page No : 2

	ACADEMY WAY Southbound				W. PELTASON DRIVE Westbound				W. PELTASON DRIVE Northbound				DRIVEWAY Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 08:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:30																	
08:30	0	**29**	5	**34**	11	0	69	80	47	10	0	57	1	**1**	0	2	173
08:45	0	20	5	25	**19**	0	**92**	**111**	**66**	**24**	0	**90**	0	0	0	0	**226**
09:00	0	15	**9**	24	16	**1**	55	72	49	13	**3**	65	**2**	1	0	**3**	164
09:15	0	22	7	29	8	0	65	73	40	15	0	55	0	1	0	1	158
Total Volume	0	86	26	112	54	1	281	336	202	62	3	267	3	3	0	6	721
% App. Total	0	76.8	23.2		16.1	0.3	83.6		75.7	23.2	1.1		50	50	0		
PHF	.000	.741	.722	.824	.711	.250	.764	.757	.765	.646	.250	.742	.375	.750	.000	.500	.798

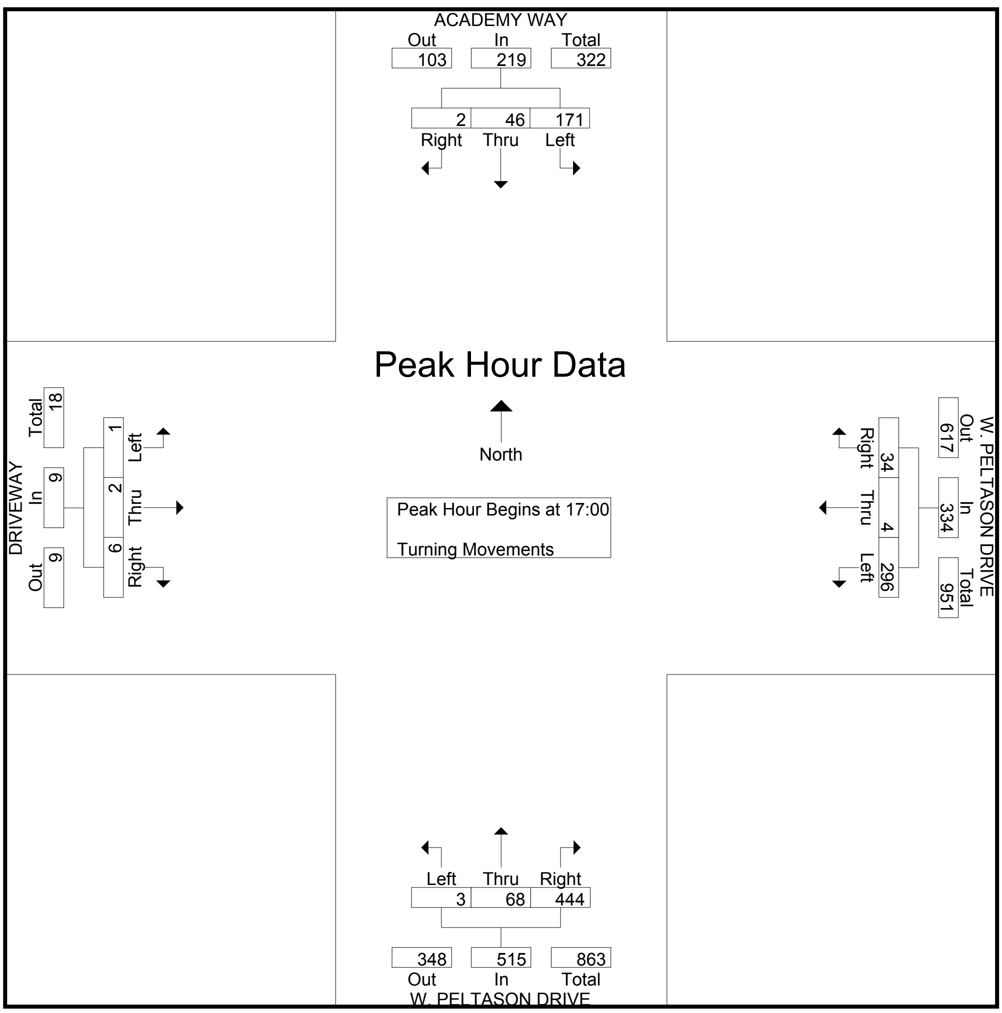


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: IRVINE
N-S Direction: W. PELTASON DR/ ACADEMY
E-W Direction: W. PELTASON DRIVE

File Name : H1701021
Site Code : 00000000
Start Date : 1/25/2017
Page No : 3

	ACADEMY WAY Southbound				W. PELTASON DRIVE Westbound				W. PELTASON DRIVE Northbound				DRIVEWAY Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:30 to 18:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	**1**	**15**	43	59	10	1	**84**	**95**	**128**	**23**	1	**152**	**3**	**1**	0	**4**	**310**
17:15	1	14	**53**	**68**	**11**	1	69	81	105	17	**2**	124	3	0	0	3	276
17:30	0	8	32	40	8	**2**	72	82	102	13	0	115	0	0	**1**	1	238
17:45	0	9	43	52	5	0	71	76	109	15	0	124	0	1	0	1	253
Total Volume	2	46	171	219	34	4	296	334	444	68	3	515	6	2	1	9	1077
% App. Total	0.9	21	78.1		10.2	1.2	88.6		86.2	13.2	0.6		66.7	22.2	11.1		
PHF	.500	.767	.807	.805	.773	.500	.881	.879	.867	.739	.375	.847	.500	.500	.250	.563	.869



Transportation Studies, Inc.

2640 Walnut Avenue, Suite L
Tustin, CA. 92780

Location : BISON AVENUE Site: IRVINE
Segment : W/O CALIFORNIA AVENUE Date: 01/17/17
Client : STANTEC

Interval	EB				WB				Combined				Day: Tuesday
Begin	AM		PM		AM		PM		AM		PM		
12:00	12	27	117	502	8	29	272	906	20	56	389	1,408	
12:15	6		132		11		217		17		349		
12:30	5		112		6		230		11		342		
12:45	4		141		4		187		8		328		
01:00	1	8	147	595	6	11	153	643	7	19	300	1.238	
01:15	4		158		2		144		6		302		
01:30	2		150		2		172		4		322		
01:45	1		140		1		174		2		314		
02:00	2	9	102	394	3	22	242	756	5	31	344	1.150	
02:15	2		102		12		182		14		284		
02:30	4		92		5		186		9		278		
02:45	1		98		2		146		3		244		
03:00	4	12	94	453	2	13	190	902	6	25	284	1.355	
03:15	3		104		4		186		7		290		
03:30	1		119		3		294		4		413		
03:45	4		136		4		232		8		368		
04:00	7	53	115	476	6	21	280	1,116	13	74	395	1,592	
04:15	6		117		4		230		10		347		
04:30	17		132		5		280		22		412		
04:45	23		112		6		326		29		438		
05:00	20	168	119	492	15	62	509	1,736	35	230	628	2,228	
05:15	36		122		15		550		51		672		
05:30	44		120		19		352		63		472		
05:45	68		131		13		325		81		456		
06:00	72	359	130	455	31	137	340	1.271	103	496	470	1.726	
06:15	74		144		37		292		111		436		
06:30	87		92		23		339		110		431		
06:45	126		89		46		300		172		389		
07:00	148	975	72	279	49	281	240	750	197	1.256	312	1.029	
07:15	205		74		76		184		281		258		
07:30	272		76		68		194		340		270		
07:45	350		57		88		132		438		189		
08:00	318	1.382	62	231	106	350	149	452	424	1.732	211	683	
08:15	324		72		88		104		412		176		
08:30	348		38		79		114		427		152		
08:45	392		59		77		85		469		144		
09:00	318	1,002	50	161	90	350	99	350	408	1,352	149	511	
09:15	277		47		68		80		345		127		
09:30	201		32		108		101		309		133		
09:45	206		32		84		70		290		102		
10:00	142	562	27	111	112	417	82	183	254	979	109	294	
10:15	132		35		90		55		222		90		
10:30	152		27		93		29		245		56		
10:45	136		22		122		17		258		39		
11:00	92	362	21	51	176	799	22	75	268	1.161	43	126	
11:15	82		10		158		19		240		29		
11:30	82		10		228		23		310		33		
11:45	106		10		237		11		343		21		
Totals	4.919		4.200		2.492		9.140		7.411		13.340		
Split%	66.4		31.5		33.6		68.5						
Day Totals		9.119				11.632				20.751			
Day Splits		43.9				56.1							
Peak Hour	08:00		12:45		11:00		04:45		08:00		05:00		
Volume	1.382		596		799		1.737		1.732		2.228		
Factor	0.88		0.94		0.84		0.79		0.92		0.83		

Data File : D1701020

Transportation Studies, Inc.

2640 Walnut Avenue, Suite L
Tustin, CA. 92780

Location	: CALIFORNIA AVENUE	Site:	ORANGE
Segment	: N/O BISON AVENUE	Date:	01/17/17
Client	: STANTEC		

Interval	NB				SB				Combined				Day:	Tuesday
Begin	AM		PM		AM		PM		AM		PM			
12:00	3	6	88	372	4	12	211	613	7	18	299	985		
12:15	2		92		2		164		4		256			
12:30	0		88		4		112		4		200			
12:45	1		104		2		126		3		230			
01:00	2	6	104	362	2	6	108	544	4	12	212	906		
01:15	3		97		2		132		5		229			
01:30	1		86		0		158		1		244			
01:45	0		75		2		146		2		221			
02:00	0	2	64	247	0	11	140	439	0	13	204	686		
02:15	0		56		9		109		9		165			
02:30	1		58		2		98		3		156			
02:45	1		69		0		92		1		161			
03:00	0	2	51	205	0	2	126	457	0	4	177	662		
03:15	1		32		2		96		3		128			
03:30	1		52		0		143		1		195			
03:45	0		70		0		92		0		162			
04:00	1	8	87	350	2	10	167	721	3	18	254	1,071		
04:15	0		87		0		166		0		253			
04:30	3		82		4		180		7		262			
04:45	4		94		4		208		8		302			
05:00	5	36	96	330	6	53	515	1,615	11	89	611	1,945		
05:15	10		84		11		503		21		587			
05:30	8		72		16		288		24		360			
05:45	13		78		20		309		33		387			
06:00	29	125	78	334	30	125	263	874	59	250	341	1,208		
06:15	28		100		19		258		47		358			
06:30	24		72		30		199		54		271			
06:45	44		84		46		154		90		238			
07:00	54	337	54	167	70	377	96	303	124	714	150	470		
07:15	50		48		86		89		136		137			
07:30	82		36		76		74		158		110			
07:45	151		29		145		44		296		73			
08:00	183	635	26	60	162	855	44	119	345	1,490	70	179		
08:15	142		15		198		34		340		49			
08:30	160		10		174		29		334		39			
08:45	150		9		321		12		471		21			
09:00	130	447	11	31	314	1,272	12	47	444	1,719	23	78		
09:15	102		10		318		13		420		23			
09:30	116		6		310		10		426		16			
09:45	99		4		330		12		429		16			
10:00	46	228	1	14	196	652	18	44	242	880	19	58		
10:15	64		4		178		16		242		20			
10:30	46		4		112		4		158		8			
10:45	72		5		166		6		238		11			
11:00	71	282	1	5	104	624	6	32	175	906	7	37		
11:15	48		1		138		4		186		5			
11:30	73		2		200		10		273		12			
11:45	90		1		182		12		272		13			
Totals	2,114		2,477		3,999		5,808		6,113		8,285			
Split%	34.6		29.9		65.4		70.1							
Day Totals		4,591				9,807				14,398				
Day Splits		31.9				68.1								
Peak Hour	07:45		12:30		09:00		05:00		08:45		05:00			
Volume	636		393		1,272		1,615		1,761		1,945			
Factor	0.87		0.94		0.96		0.78		0.93		0.80			

Data File : D1701019

Transportation Studies, Inc.

2640 Walnut Avenue, Suite L
Tustin, CA. 92780

Location	: BISON AVENUE	Site:	IRVINE
Segment	: E/O CALIFORNIA AVENUE	Date:	01/17/17
Client	: STANTEC		

Interval	EB				WB				Combined				Day:	Tuesday
Begin	AM		PM		AM		PM		AM		PM			
12:00	11	28	182	552	6	26	154	692	17	54	336	1,244		
12:15	4		148		10		154		14		302			
12:30	9		116		6		212		15		328			
12:45	4		106		4		172		8		278			
01:00	1	8	718	1.940	12	15	253	558	13	23	971	2.498		
01:15	4		488		2		78		6		566			
01:30	2		326		1		63		3		389			
01:45	1		408		0		164		1		572			
02:00	2	5	256	948	2	6	335	1.405	4	11	591	2.353		
02:15	1		130		1		257		2		387			
02:30	2		98		2		250		4		348			
02:45	0		464		1		563		1		1,027			
03:00	6	14	243	640	3	11	478	1.276	9	25	721	1.916		
03:15	2		144		3		392		5		536			
03:30	0		127		1		204		1		331			
03:45	6		126		4		202		10		328			
04:00	3	45	132	492	4	16	254	1,065	7	61	386	1,557		
04:15	6		166		2		235		8		401			
04:30	14		104		3		298		17		402			
04:45	22		90		7		278		29		368			
05:00	15	146	78	276	15	69	231	711	30	215	309	987		
05:15	33		72		16		162		49		234			
05:30	40		74		22		176		62		250			
05:45	58		52		16		142		74		194			
06:00	54	267	64	228	30	147	174	528	84	414	238	756		
06:15	53		70		42		110		95		180			
06:30	68		38		23		132		91		170			
06:45	92		56		52		112		144		168			
07:00	123	816	45	150	53	344	114	420	176	1.160	159	570		
07:15	180		40		93		90		273		130			
07:30	229		35		82		132		311		167			
07:45	284		30		116		84		400		114			
08:00	224	815	28	110	142	450	96	224	366	1.265	124	334		
08:15	182		34		108		77		290		111			
08:30	171		28		101		30		272		58			
08:45	238		20		99		21		337		41			
09:00	234	889	22	53	102	440	24	76	336	1,329	46	129		
09:15	264		12		92		22		356		34			
09:30	210		11		146		24		356		35			
09:45	181		8		100		6		281		14			
10:00	138	644	8	28	99	400	21	73	237	1,044	29	101		
10:15	134		10		96		20		230		30			
10:30	190		6		76		18		266		24			
10:45	182		4		129		14		311		18			
11:00	96	467	5	10	149	536	14	29	245	1,003	19	39		
11:15	108		2		120		10		228		12			
11:30	114		1		125		3		239		4			
11:45	149		2		142		2		291		4			
Totals	4.144		5.427		2.460		7.057		6.604		12.484			
Split%	62.7		43.5		37.3		56.5							
Day Totals		9.571				9.517				19.088				
Day Splits		50.1				49.9								
Peak Hour	08:45		01:00		11:00		02:30		08:45		02:30			
Volume	946		1.940		536		1.683		1.385		2.632			
Factor	0.90		0.68		0.90		0.75		0.97		0.64			

Data File : D1701021

Transportation Studies, Inc.

2640 Walnut Avenue, Suite L
Tustin, CA. 92780

Location	: W. PELTASON DRIVE	Site:	IRVINE
Segment	: N/O BISON AVENUE	Date:	01/17/17
Client	: STANTEC	Day:	Tuesday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	8	17	91	360	9	27	133	472	17	44	224	832
12:15	6		116		12		150		18		266	
12:30	3		83		5		111		8		194	
12:45	0		70		1		78		1		148	
01:00	1	9	66	317	9	22	100	439	10	31	166	756
01:15	4		74		4		85		8		159	
01:30	2		64		5		108		7		172	
01:45	2		113		4		146		6		259	
02:00	2	3	90	273	7	11	136	374	9	14	226	647
02:15	1		56		0		68		1		124	
02:30	0		58		4		79		4		137	
02:45	0		69		0		91		0		160	
03:00	0	5	59	358	2	7	92	493	2	12	151	851
03:15	2		116		3		142		5		258	
03:30	3		101		2		141		5		242	
03:45	0		82		0		118		0		200	
04:00	1	5	81	375	3	9	102	563	4	14	183	938
04:15	0		56		1		103		1		159	
04:30	2		97		3		150		5		247	
04:45	2		141		2		208		4		349	
05:00	6	16	138	437	5	31	218	668	11	47	356	1,105
05:15	4		126		10		184		14		310	
05:30	2		88		6		124		8		212	
05:45	4		85		10		142		14		227	
06:00	7	47	100	479	11	71	160	708	18	118	260	1,187
06:15	11		157		12		198		23		355	
06:30	9		129		12		188		21		317	
06:45	20		93		36		162		56		255	
07:00	27	194	67	203	44	355	106	326	71	549	173	529
07:15	40		56		64		90		104		146	
07:30	51		36		95		64		146		100	
07:45	76		44		152		66		228		110	
08:00	100	328	39	151	118	443	68	226	218	771	107	377
08:15	60		39		90		56		150		95	
08:30	70		34		101		56		171		90	
08:45	98		39		134		46		232		85	
09:00	92	355	36	182	106	498	64	263	198	853	100	445
09:15	88		27		144		41		232		68	
09:30	94		69		132		76		226		145	
09:45	81		50		116		82		197		132	
10:00	60	294	28	72	90	469	58	131	150	763	86	203
10:15	48		16		104		30		152		46	
10:30	76		18		133		28		209		46	
10:45	110		10		142		15		252		25	
11:00	75	273	16	38	110	344	22	64	185	617	38	102
11:15	52		10		66		16		118		26	
11:30	66		7		70		17		136		24	
11:45	80		5		98		9		178		14	
Totals	1,546		3,245		2,287		4,727		3,833		7,972	
Split%	40.3		40.7		59.7		59.3					
Day Totals		4,791				7,014				11,805		
Day Splits		40.6				59.4						
Peak Hour	08:45		04:30		08:45		04:30		08:45		04:30	
Volume	372		502		516		760		888		1,262	
Factor	0.95		0.89		0.90		0.87		0.96		0.89	

Data File : D1701023

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

Location : E. PELTASON DRIVE — Site: IRVINE
Segment : S/O BISON AVENUE — Date: 01/17/17
Client : STANTEC

Interval	NB				SB				Combined				Day: Tuesday
Begin	AM		PM		AM		PM		AM		PM		
12:00	7	21	104	500	10	26	175	532	17	47	279	1,032	
12:15	11		116		6		144		17		260		
12:30	2		160		6		111		8		271		
12:45	1		120		4		102		5		222		
01:00	4	9	100	382	4	16	100	430	8	25	200	812	
01:15	3		80		6		108		9		188		
01:30	0		78		3		104		3		182		
01:45	2		124		3		118		5		242		
02:00	1	5	158	467	3	10	109	361	4	15	267	828	
02:15	1		103		1		82		2		185		
02:30	2		90		6		82		8		172		
02:45	1		116		0		88		1		204		
03:00	1	9	113	527	5	13	108	455	6	22	221	982	
03:15	2		124		1		120		3		244		
03:30	2		183		2		131		4		314		
03:45	4		107		5		96		9		203		
04:00	2	14	117	509	4	15	96	521	6	29	213	1,030	
04:15	4		98		3		111		7		209		
04:30	3		124		3		168		6		292		
04:45	5		170		5		146		10		316		
05:00	12	54	214	667	3	62	228	778	15	116	442	1,445	
05:15	12		213		13		198		25		411		
05:30	19		110		15		172		34		282		
05:45	11		130		31		180		42		310		
06:00	22	128	117	611	38	160	176	826	60	288	293	1,437	
06:15	31		151		30		198		61		349		
06:30	30		190		42		314		72		504		
06:45	45		153		50		138		95		291		
07:00	45	334	119	387	58	494	107	356	103	828	226	743	
07:15	82		86		106		90		188		176		
07:30	96		89		140		90		236		179		
07:45	111		93		190		69		301		162		
08:00	153	507	90	301	130	494	76	274	283	1.001	166	575	
08:15	106		62		112		67		218		129		
08:30	118		78		114		59		232		137		
08:45	130		71		138		72		268		143		
09:00	131	524	69	269	158	561	58	208	289	1,085	127	477	
09:15	114		51		153		48		267		99		
09:30	147		89		154		43		301		132		
09:45	132		60		96		59		228		119		
10:00	88	375	53	140	100	456	53	154	188	831	106	294	
10:15	86		47		102		39		188		86		
10:30	91		25		128		38		219		63		
10:45	110		15		126		24		236		39		
11:00	108	398	17	59	119	452	29	68	227	850	46	127	
11:15	76		19		102		11		178		30		
11:30	98		14		106		14		204		28		
11:45	116		9		125		14		241		23		
Totals	2.378		4.819		2.759		4.963		5.137		9.782		
Split%	46.3		49.3		53.7		50.7						
Day Totals		7.197				7.722				14.919			
Day Splits		48.2				51.8							
Peak Hour	09:00		04:30		08:45		05:45		08:45		04:30		
Volume	524		721		603		868		1.125		1.461		
Factor	0.89		0.84		0.95		0.69		0.93		0.83		

Data File : D1701022

Appendix B ICU CALCULATION WORKSHEETS

INTERSECTION CAPACITY UTILIZATION

Peak hour intersection volume/capacity ratios are calculated by means of intersection capacity utilization (ICU) values.

The procedure is based on the critical movement methodology, and shows the amount of capacity utilized by each critical move. A capacity of 1,700 vehicles per hour (VPH) per lane is assumed together with a .05 clearance interval for City of Irvine intersections, and a capacity of 1,600 VPH is assumed for the City of Newport Beach intersection. A "de-facto" right-turn lane is used in the ICU calculation for cases where a curb lane is wide enough to separately serve both through and right-turn traffic (i.e., with a width of 19 feet from curb to outside of through-lane with parking prohibited during peak periods). Such lanes are treated the same as striped right-turn lanes during the ICU calculations, but they are denoted on the ICU calculation worksheets using the letter "d" in place of a numerical entry for right-turn lanes.

The methodology also incorporates a check for right-turn capacity utilization. Both right-turn-on-green (RTOG) and right-turn-on-red (RTOR) capacity availability are calculated and checked against the total right-turn capacity need. If insufficient capacity is available, then an adjustment is made to the total capacity utilization value. The following example shows how this adjustment is made.

Example for Northbound Right

1. Right-Turn-On-Green (RTOG)

If NBT is critical move, then:

RTOG = V/C (NBT)

Otherwise,

RTOG = V/C (NBL) + V/C (SBT) - V/C (SBL)

2. Right-Turn-On-Red (RTOR)

If WBL is critical move, then:

RTOR = V/C (WBL)

Otherwise,

RTOR = V/C (EBL) + V/C (WBT) - V/C (EBT)

3. Right-Turn Overlap Adjustment

If the northbound right is assumed to overlap with the adjacent westbound left, adjustments to the RTOG and RTOR values are made as follows:

RTOG = RTOG + V/C (WBL)

RTOR = RTOR - V/C (WBL)

4. Total Right-Turn Capacity (RTC) Availability for NBR

RTC = RTOG + factor x RTOR

Where factor = RTOR saturation flow factor (75%)

Right-turn adjustment is then as follows:

Additional ICU = V/C (NBR) - RTC

A zero or negative value indicates that adequate capacity is available and no adjustment is necessary. A positive value indicates that the available RTOR and RTOG capacity does not adequately accommodate the right-turn V/C; therefore, the right-turn is essentially considered to be a critical movement. In such cases, the right-turn adjustment is noted on the ICU worksheet and it is included in the total capacity utilization value. When it is determined that a right-turn adjustment is required for more than one right-turn movement, the word "multi" is printed on the worksheet instead of an actual right-turn movement reference, and the right-turn adjustments are cumulatively added to the total capacity utilization value. In such cases, further operational evaluation is typically carried out to determine if under actual operational conditions, the critical right-turns would operate simultaneously, and therefore a right-turn adjustment credit should be applied.

Shared Lane V/C Methodology

For intersection approaches where shared usage of a lane is permitted by more than one turn movement (e.g., left/through, through/right, left/through/right), the individual turn volumes are evaluated to determine whether dedication of the shared lane is warranted to any one given turn movement. The following example demonstrates how this evaluation is carried out:

Example for Shared Left/Through Lane

1. Average Lane Volume (ALV)

$$\text{ALV} = \frac{\text{Left-Turn Volume + Through Volume}}{\text{Total Left + Through Approach Lanes (including shared lane)}}$$

2. ALV for Each Approach

$$\text{ALV (Left)} = \frac{\text{Left-Turn Volume}}{\text{Left Approach Lanes (including shared lane)}}$$

$$\text{ALV (Through)} = \frac{\text{Through Volume}}{\text{Through Approach Lanes (including shared lane)}}$$

3. Lane Dedication is Warranted

If ALV (Left) is greater than ALV, then full dedication of the shared lane to the left-turn approach is warranted. Left-turn and through V/C ratios for this case are calculated as follows:

$$\text{V/C (Left)} = \frac{\text{Left-Turn Volume}}{\text{Left Approach Capacity (including shared lane)}}$$

$$\text{V/C (Through)} = \frac{\text{Through Volume}}{\text{Through Approach Capacity (excluding shared lane)}}$$

Similarly, if ALV (Through) is greater than ALV then full dedication to the through approach is warranted, and left-turn and through V/C ratios are calculated as follows:

$$\text{V/C (Left)} = \frac{\text{Left-Turn Volume}}{\text{Left Approach Capacity (excluding shared lane)}}$$

$$\text{V/C (Through)} = \frac{\text{Through Volume}}{\text{Through Approach Capacity (including shared lane)}}$$

4. Lane Dedication is not Warranted

If ALV (Left) and ALV (Through) are both less than ALV, the left/through lane is assumed to be truly shared and each left, left/through or through approach lane carries an evenly distributed volume of traffic equal to ALV. A combined left/through V/C ratio is calculated as follows:

$$\text{V/C (Left/Through)} = \frac{\text{Left-Turn Volume + Through Volume}}{\text{Total Left + Through Approach Capacity (including shared lane)}}$$

This V/C (Left/Through) ratio is assigned as the V/C (Through) ratio for the critical movement analysis and ICU summary listing.

If split phasing has not been designated for this approach, the relative proportion of V/C (Through) that is attributed to the left-turn volume is estimated as follows:

If approach has more than one left-turn lane (including shared lane), then:

V/C (Left) = V/C (Through)

If approach has only one left-turn lane (shared lane), then:

$$\text{V/C (Left)} = \frac{\text{Left-Turn Volume}}{\text{Single Approach Lane Capacity}}$$

If this left-turn movement is determined to be a critical movement, the V/C (Left) value is posted in brackets on the ICU summary printout.

These same steps are carried out for shared through/right lanes. If full dedication of a shared through/right lane to the right-turn movement is warranted, the right-turn V/C value calculated in step three is checked against the RTOR and RTOG capacity availability if the option to include right-turns in the V/C ratio calculations is selected. If the V/C value that is determined using the shared lane methodology described here is reduced due to RTOR and RTOG capacity availability, the V/C value for the through/right lanes is posted in brackets.

When an approach contains more than one shared lane (e.g., left/through and through/right), steps one and two listed above are carried out for the three turn movements combined. Step four is carried out if dedication is not warranted for either of the shared lanes. If dedication of one of the shared lanes is warranted to one movement or another, step three is carried out for the two movements involved, and then steps one through four are repeated for the two movements involved in the other shared lane.

1. SR-73 NB Ramps & Bison Ave

Existing

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		154	{.08}*	105	.03*
NBT	0	5100	1	.08	1	
NBR	1.5		276		46	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1700	43	.03	36	.02*
EBT	2	3400	1355	.40*	513	.15
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	124	.04	675	.20*
WBR	1	1700	225	.13	939	.55
Right Turn Adjustment					WBR	.33*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.53**		**.63**

Existing + Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		154	{.09}*	105	.03*
NBT	0	5100	1	.09	1	
NBR	1.5		290		51	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1700	43	.03	36	.02*
EBT	2	3400	1478	.43*	558	.16
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	156	.05	746	.22*
WBR	1	1700	257	.15	1009	.59
Right Turn Adjustment					WBR	.35*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.57**		**.67**

LRDP Build-out No Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		160	{.09}*	160	.05*
NBT	0	5100	0	.09	0	
NBR	1.5		310		50	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1700	50	.03	40	.02*
EBT	2	3400	1530	.45*	770	.23
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	240	.07	900	.26*
WBR	1	1700	230	.14	940	.55
Right Turn Adjustment					WBR	.25*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.59**		**.63**

LRDP Build-out with-project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		160	.09*	160	.05*
NBT	0	5100	0		0	
NBR	1.5		324	.10	55	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1700	50	.03	40	.02*
EBT	2	3400	1653	.49*	815	.24
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	272	.08	971	.29*
WBR	1	1700	262	.15	1010	.59
Right Turn Adjustment			NBR	.01*	WBR	.26*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.64**		**.67**

2. California Ave & Bison Ave

Existing

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	18	.01*	214	.13*
NBT	2	3400	25	.01	232	.07
NBR	d	1700	3	.00	16	.01
SBL	1	1700	85	.05	95	.06
SBT	1.5	5100	365	.11*	21	.01*
SBR	1.5		93		627	.18
EBL	1	1700	465	.27*	123	.07*
EBT	2	3400	847	.25	402	.12
EBR	1	1700	271	.16	40	.02
WBL	1	1700	4	.00	7	.00
WBT	2	3400	247	.07*	769	.23*
WBR	d	1700	75	.04	62	.04
Right Turn Adjustment					SBR	.12*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.51**		**.61**

Existing + Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	82	.05*	355	.21*
NBT	2	3400	44	.01	274	.08
NBR	d	1700	3	.00	16	.01
SBL	1	1700	85	.05	95	.06
SBT	1.5	5100	406	.12*	36	.02*
SBR	1.5		93		627	.18
EBL	1	1700	465	.27*	123	.07*
EBT	2	3400	847	.25	402	.12
EBR	1	1700	408	.24	90	.05
WBL	1	1700	4	.00	7	.00
WBT	2	3400	247	.07*	769	.23*
WBR	d	1700	75	.04	62	.04
Right Turn Adjustment					SBR	.11*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.56**		**.69**

LRDP Build-out No Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01*	220	.13
NBT	2	3400	30	.01	240	.07*
NBR	d	1700	10	.01	20	.01
SBL	1	1700	90	.05	140	.08*
SBT	1.5	5100	370	.11*	30	.02
SBR	1.5		140		1000	.29
EBL	1	1700	870	.51*	150	.09*
EBT	2	3400	850	.25	690	.20
EBR	1	1700	280	.16	50	.03
WBL	1	1700	10	.01	10	.01
WBT	2	3400	350	.10*	770	.23*
WBR	d	1700	170	.10	80	.05
Right Turn Adjustment					SBR	.20*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.78**		**.72**

LRDP Build-out with-project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	84	.05*	361	.21*
NBT	2	3400	49	.01	282	.08
NBR	d	1700	10	.01	20	.01
SBL	1	1700	90	.05	140	.08
SBT	1.5	5100	411	.12*	45	.03*
SBR	1.5		140		1000	.29
EBL	1	1700	870	.51*	150	.09*
EBT	2	3400	850	.25	690	.20
EBR	1	1700	417	.25	100	.06
WBL	1	1700	10	.01	10	.01
WBT	2	3400	350	.10*	770	.23*
WBR	d	1700	170	.10	80	.05
Right Turn Adjustment					SBR	.19*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.83**		**.80**

3. Peltason Dr & Bison Ave

Existing

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	357	.21*	432	.25*
NBT	1	1700	107	.06	109	.06
NBR	d	1700	44	.03	32	.02
SBL	1	1700	163	.10	91	.05
SBT	1	1700	71	.04*	131	.08*
SBR	1	1700	112	.07	154	.09
EBL	0	0	117		180	{.11}*
EBT	1	1700	234	.21*	40	.13
EBR	1	1700	446	.26	452	.27
WBL	0	0	24	{.01}*	107	
WBT	1	1700	18	.02	132	.14*
WBR	1	1700	51	.03	176	.10
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.52**		**.63**

Existing + Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	412	.24*	452	.27*
NBT	1	1700	107	.06	109	.06
NBR	d	1700	44	.03	32	.02
SBL	1	1700	163	.10	91	.05
SBT	1	1700	71	.04*	131	.08*
SBR	1	1700	139	.08	164	.10
EBL	0	0	130		208	{.12}*
EBT	1	1700	240	.22*	54	.15
EBR	1	1700	471	.28	508	.30
WBL	0	0	24	{.01}*	107	
WBT	1	1700	32	.03	137	.14*
WBR	1	1700	51	.03	176	.10
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.56**		**.66**

LRDP Build-out No Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	360	.21*	440	.26*
NBT	1	1700	110	.06	150	.09
NBR	d	1700	50	.03	160	.09
SBL	1	1700	170	.10	260	.15
SBT	1	1700	90	.05*	170	.10*
SBR	1	1700	120	.07	160	.09
EBL	0	0	120		190	{.11}*
EBT	1	1700	280	.24*	100	.17
EBR	1	1700	450	.26	610	.36
WBL	0	0	230	{.14}*	110	
WBT	1	1700	120	.21	140	.15*
WBR	1	1700	180	.11	180	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.69**		**.67**

LRDP Build-out with-project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	415	.24*	460	.27*
NBT	1	1700	110	.06	150	.09
NBR	d	1700	50	.03	160	.09
SBL	1	1700	170	.10	260	.15
SBT	1	1700	90	.05*	170	.10*
SBR	1	1700	147	.09	170	.10
EBL	0	0	133		218	{.13}*
EBT	1	1700	286	.25*	114	.20
EBR	1	1700	475	.28	666	.39
WBL	0	0	230	{.14}*	110	
WBT	1	1700	134	.21	145	.15*
WBR	1	1700	180	.11	180	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.73**		**.70**

4. W Peltason Dr/Academy & W. Peltason Dr (stop sign)

Existing

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	3		3	
NBT	1	1700	62	.16*	68	.30*
NBR	0	0	202		444	
SBL	1	1700	26	.02*	171	.10*
SBT	1	1700	86	.05	46	.03
SBR	0	0	0		2	
EBL	0	0	0		1	
EBT	1	1700	3	.00*	2	.01*
EBR	0	0	3		6	
WBL	1	1700	281	.17*	296	.17*
WBT	1	1700	1	.03	4	.02
WBR	0	0	54		34	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.40**		**.63**

Existing + Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	3		3	
NBT	1	1700	62	.16*	68	.32*
NBR	0	0	215		472	
SBL	1	1700	26	.02*	171	.10*
SBT	1	1700	86	.05	46	.03
SBR	0	0	0		2	
EBL	0	0	0		1	
EBT	1	1700	3	.00*	2	.01*
EBR	0	0	3		6	
WBL	1	1700	308	.18*	306	.18*
WBT	1	1700	1	.03	4	.02
WBR	0	0	54		34	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.41**		**.66**

LRDP Build-out No Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		10	
NBT	1	1700	230	.26*	100	.33*
NBR	0	0	210		450	
SBL	1	1700	80	.05*	180	.11*
SBT	1	1700	90	.06	300	.18
SBR	0	0	10		10	
EBL	0	0	10		10	
EBT	1	1700	10	.02*	10	.02*
EBR	0	0	10		10	
WBL	1	1700	290	.17*	300	.18*
WBT	1	1700	10	.10	10	.06
WBR	0	0	160		100	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.55**		**.69**

LRDP Build-out with-project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		10	
NBT	1	1700	230	.27*	100	.35*
NBR	0	0	223		478	
SBL	1	1700	80	.05*	180	.11*
SBT	1	1700	90	.06	300	.18
SBR	0	0	10		10	
EBL	0	0	10		10	
EBT	1	1700	10	.02*	10	.02*
EBR	0	0	10		10	
WBL	1	1700	317	.19*	310	.18*
WBT	1	1700	10	.10	10	.06
WBR	0	0	160		100	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.58**		**.71**

Appendix C HCM DELAY CALCULATION WORKSHEET

Intersection	
Intersection Delay, s/veh	15.4
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Vol, veh/h	0	0	3	3	0	281	1	54	0	3	62	202
Future Vol, veh/h	0	0	3	3	0	281	1	54	0	3	62	202
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	4	4	0	351	1	68	0	4	78	253
Number of Lanes	0	0	1	0	0	1	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	2	2
HCM Control Delay	9.6	17.6	14.7
HCM LOS	A	C	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	1%	0%	100%	0%	100%	0%
Vol Thru, %	23%	50%	0%	2%	0%	100%
Vol Right, %	76%	50%	0%	98%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	267	6	281	55	26	86
LT Vol	3	0	281	0	26	0
Through Vol	62	3	0	1	0	86
RT Vol	202	3	0	54	0	0
Lane Flow Rate	334	8	351	69	32	108
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.523	0.013	0.628	0.1	0.062	0.191
Departure Headway (Hd)	5.639	6.451	6.434	5.234	6.891	6.383
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	641	553	562	685	519	561
Service Time	3.676	4.507	4.163	2.963	4.638	4.13
HCM Lane V/C Ratio	0.521	0.014	0.625	0.101	0.062	0.193
HCM Control Delay	14.7	9.6	19.4	8.5	10.1	10.6
HCM Lane LOS	B	A	C	A	B	B
HCM 95th-tile Q	3	0	4.3	0.3	0.2	0.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Vol, veh/h	0	26	86	0
Future Vol, veh/h	0	26	86	0
Peak Hour Factor	0.80	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	33	108	0
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	10.5
HCM LOS	B

Intersection	
Intersection Delay, s/veh	39.8
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Vol, veh/h	0	1	2	6	0	296	4	34	0	3	68	444
Future Vol, veh/h	0	1	2	6	0	296	4	34	0	3	68	444
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	2	7	0	340	5	39	0	3	78	510
Number of Lanes	0	0	1	0	0	1	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	2	2
HCM Control Delay	11.4	25.7	60.1
HCM LOS	B	D	F

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	1%	11%	100%	0%	100%	0%
Vol Thru, %	13%	22%	0%	11%	0%	96%
Vol Right, %	86%	67%	0%	89%	0%	4%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	515	9	296	38	171	48
LT Vol	3	1	296	0	171	0
Through Vol	68	2	0	4	0	46
RT Vol	444	6	0	34	0	2
Lane Flow Rate	592	10	340	44	197	55
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.995	0.023	0.721	0.079	0.416	0.108
Departure Headway (Hd)	6.05	8.1	7.625	6.473	7.612	7.069
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	604	440	476	554	474	507
Service Time	4.072	6.176	5.353	4.201	5.358	4.814
HCM Lane V/C Ratio	0.98	0.023	0.714	0.079	0.416	0.108
HCM Control Delay	60.1	11.4	27.7	9.8	15.7	10.7
HCM Lane LOS	F	B	D	A	C	B
HCM 95th-tile Q	14.7	0.1	5.7	0.3	2	0.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Vol, veh/h	0	171	46	2
Future Vol, veh/h	0	171	46	2
Peak Hour Factor	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	197	53	2
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	14.6
HCM LOS	B

Intersection	
Intersection Delay, s/veh	17.4
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Vol, veh/h	0	0	3	3	0	308	1	54	0	3	62	215
Future Vol, veh/h	0	0	3	3	0	308	1	54	0	3	62	215
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	4	4	0	385	1	68	0	4	78	269
Number of Lanes	0	0	1	0	0	1	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	2	2
HCM Control Delay	9.8	20.7	15.9
HCM LOS	A	C	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	1%	0%	100%	0%	100%	0%
Vol Thru, %	22%	50%	0%	2%	0%	100%
Vol Right, %	77%	50%	0%	98%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	280	6	308	55	26	86
LT Vol	3	0	308	0	26	0
Through Vol	62	3	0	1	0	86
RT Vol	215	3	0	54	0	0
Lane Flow Rate	350	8	385	69	32	108
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.56	0.014	0.696	0.101	0.064	0.196
Departure Headway (Hd)	5.759	6.617	6.505	5.304	7.069	6.56
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	627	539	554	675	506	546
Service Time	3.805	4.686	4.241	3.04	4.828	4.318
HCM Lane V/C Ratio	0.558	0.015	0.695	0.102	0.063	0.198
HCM Control Delay	15.9	9.8	22.9	8.6	10.3	10.9
HCM Lane LOS	C	A	C	A	B	B
HCM 95th-tile Q	3.5	0	5.4	0.3	0.2	0.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Vol, veh/h	0	26	86	0
Future Vol, veh/h	0	26	86	0
Peak Hour Factor	0.80	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	33	108	0
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	10.8
HCM LOS	B

Intersection	
Intersection Delay, s/veh	46.8
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Vol, veh/h	0	1	2	6	0	306	4	34	0	3	68	472
Future Vol, veh/h	0	1	2	6	0	306	4	34	0	3	68	472
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	2	7	0	352	5	39	0	3	78	543
Number of Lanes	0	0	1	0	0	1	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	2	2
HCM Control Delay	11.5	26.8	73.1
HCM LOS	B	D	F

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	1%	11%	100%	0%	100%	0%
Vol Thru, %	13%	22%	0%	11%	0%	96%
Vol Right, %	87%	67%	0%	89%	0%	4%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	543	9	306	38	171	48
LT Vol	3	1	306	0	171	0
Through Vol	68	2	0	4	0	46
RT Vol	472	6	0	34	0	2
Lane Flow Rate	624	10	352	44	197	55
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	1.043	0.023	0.734	0.078	0.409	0.107
Departure Headway (Hd)	6.017	8.294	7.722	6.569	7.743	7.199
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	599	434	471	549	468	501
Service Time	4.084	6.294	5.422	4.269	5.443	4.899
HCM Lane V/C Ratio	1.042	0.023	0.747	0.08	0.421	0.11
HCM Control Delay	73.1	11.5	28.9	9.8	15.7	10.8
HCM Lane LOS	F	B	D	A	C	B
HCM 95th-tile Q	16.9	0.1	6	0.3	2	0.4

Intersection				
Intersection Delay, s/veh				
Intersection LOS				

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Vol, veh/h	0	171	46	2
Future Vol, veh/h	0	171	46	2
Peak Hour Factor	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	197	53	2
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	14.6
HCM LOS	B

APPENDIX G

CEQA Notices

UCI University of California, Irvine

Environmental Planning & Sustainability
4199 Campus Drive, Suite 380
Irvine, CA 92697-2325
(949) 824-6316
www.eps.uci.edu

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

Project Title: Bison Avenue Surface Parking Lot
Project Location: University of California, Irvine
Lead Agency: University of California
County: Orange

In accordance with the California Environmental Quality Act (CEQA) Guidelines and University of California Guidelines for Implementation of CEQA, an Initial Study for the Bison Avenue Surface Parking Lot project (proposed project) was prepared by the University of California, Irvine (UCI), and was determined that a Mitigated Negative Declaration is the appropriate level of analysis.

The proposed project would construct an approximately 1,100-space surface parking lot on the UCI campus. The approximately 7.6 acre project site is located adjacent to Bison Avenue, California Avenue, and Health Sciences Drive in the West Campus sector of UCI. Construction of the proposed project would provide parking supply to replace parking spaces lost to previous campus construction projects, parking spaces projected to be lost to upcoming campus construction projects, and to meet future parking demand for campus commuters and visitors.

The project scope includes vegetation clearing; grading; asphalt paving including two driveway connections to Health Sciences Drive; construction of pedestrian walkways; and installation of lighting to allow 24-hour use, drainage improvements, electric vehicle (EV) charging stations, landscaping, and irrigation. The proposed project would be constructed to allow for the future installation of an information booth and security access gate if deemed necessary at a later time.

The project has been analyzed in the Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND) and determined that, with the incorporation of mitigation, it will not have a significant effect on the environment. The document is available for viewing on the UCI website at: http://www.eps.uci.edu/EnvironmentalPlanning/index.html. Hard copies of the Draft IS/MND and referenced documents are available for review during business hours at the University of California, Irvine's Office of Environmental Planning and Sustainability. Comments will be received June 19, 2017 through July 18, 2017, and can be emailed to hashimol@uci.edu or mailed to:

Lindsey Hashimoto, Senior Planner
Office of Environmental Planning and Sustainability
University of California, Irvine
4199 Campus Drive, Suite 380
Irvine, CA 92697

The Draft IS/MND, along with comments received during the public review period, will be considered by the Chancellor in conjunction with project approval. If adopted by the University, the Draft IS/MND will be finalized.

Richard Demerjian, Assistant Vice Chancellor

THE UNIVERSITY OF CALIFORNIA
LET THERE BE LIGHT
IRVINE

AFFIDAVIT OF PUBLICATION

STATE OF CALIFORNIA,)
) ss.
County of Orange)

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of **The Orange County Register**, a newspaper of general circulation, published in the city of Santa Ana, County of Orange, and which newspaper has been adjudged to be a newspaper of general circulation by the Superior Court of the County of Orange, State of California, under the date of November 19, 1905, Case No. A-21046, that the notice, of which the annexed is a true printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

June 16, 2017

"I certify (or declare) under the penalty of perjury under the laws of the State of California that the foregoing is true and correct":

Executed at Santa Ana, Orange County, California, on

Date: June 16, 2017

Signature

The Orange County Register
625 N. Grand Ave.
Santa Ana, CA 92701
(714) 796-2209

PROOF OF PUBLICATION

NOTICE OF INTENT
TO ADOPT A MITIGATED NEGATIVE DECLARATION

BISON AVENUE SURFACE PARKING LOT

UNIVERSITY OF CALIFORNIA, IRVINE

In accordance with the California Environmental Quality Act (CEQA) Guidelines and University of California Guidelines for Implementation of CEQA, an Initial Study for the Bison Avenue Surface Parking Lot project (proposed project) was prepared by the University of California, Irvine (UCI), and was determined that a Mitigated Negative Declaration is the appropriate level of analysis.

The proposed project would construct an approximately 330,000-gross-square-foot surface parking lot that would accommodate up to 1,100 spaces on an approximately 7.6-acre site located on the West Campus. The project scope includes vegetation clearing; grading; asphalt paving including two driveway connections to Health Sciences Drive; construction of pedestrian walkways; and installation of lighting to allow 24-hour use, drainage improvements, electric vehicle (EV) charging stations, landscaping, and irrigation. The proposed project would be constructed to allow for the future installation of an information booth and security access gate if deemed necessary at a later time.

The project has been analyzed in the Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND) and determined that, with the incorporation of mitigation, it will not have a significant effect on the environment. The document is available at: http://www.eps.uci.edu/EnvironmentalPlanning/index.html. The 30-day public review period will begin June 16, 2017 through July 15, 2017. Comments may be sent to Lindsey Hashimoto, Senior Planner, at hashimol@uci.edu or mailed to University of California, Irvine, Office of Environmental Planning and Sustainability, 4199 Campus Drive, Suite 380, Irvine, CA 92697. If you have any questions regarding the project, please call (949) 824-8692.

Published: Orange County Register June 16, 2017 R-1082 10965303

Print Form

Appendix C

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: Bison Avenue Surface Parking Lot

Lead Agency: University of California, Irvine — Contact Person: Richard Demerjian
Mailing Address: 4199 Campus Drive, Suite 380, Irvine, CA 92697 — Phone: (949) 824-7058
City: Irvine — Zip: 92697 — County: Orange

Project Location: County: Orange — City/Nearest Community: Irvine
Cross Streets: Bison Avenue and California Avenue — Zip Code: 92697
Longitude/Latitude (degrees, minutes and seconds): 33 °38 ′26 ″N / -117 °51 ′5 ″W — Total Acres: 7.6
Assessor's Parcel No.: ____ Section: ____ Twp.: ____ Range: ____ Base: ____
Within 2 Miles: State Hwy #: SR-73 and I-405 — Waterways: San Diego Creek
Airports: ____ Railways: ____ Schools: Tarbut V'Torah

Document Type:

CEQA: ☐ NOP ☐ Early Cons ☐ Neg Dec ☒ Mit Neg Dec ☐ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ____ Other: ____
NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI
Other: ☐ Joint Document ☐ Final Document ☐ Other: ____

Local Action Type:

☐ General Plan Update ☐ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan
☐ Rezone ☐ Prezone ☐ Use Permit ☐ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☒ Other: Design Approval

Development Type:

☐ Residential: Units ____ Acres ____
☐ Office: Sq.ft. ____ Acres ____ Employees ____
☐ Commercial: Sq.ft. ____ Acres ____ Employees ____
☐ Industrial: Sq.ft. ____ Acres ____ Employees ____
☐ Educational: ____
☐ Recreational: ____
☐ Water Facilities: Type ____ MGD ____
☒ Transportation: Type parking lot
☐ Mining: Mineral ____
☐ Power: Type ____ MW ____
☐ Waste Treatment: Type ____ MGD ____
☐ Hazardous Waste: Type ____
☐ Other: ____

Project Issues Discussed in Document:

☒ Aesthetic/Visual ☐ Agricultural Land ☒ Air Quality ☒ Archeological/Historical ☒ Biological Resources ☐ Coastal Zone ☒ Drainage/Absorption ☐ Economic/Jobs
☐ Fiscal ☒ Flood Plain/Flooding ☒ Forest Land/Fire Hazard ☒ Geologic/Seismic ☐ Minerals ☒ Noise ☒ Population/Housing Balance ☒ Public Services/Facilities
☒ Recreation/Parks ☒ Schools/Universities ☒ Septic Systems ☒ Sewer Capacity ☒ Soil Erosion/Compaction/Grading ☒ Solid Waste ☒ Toxic/Hazardous ☒ Traffic/Circulation
☒ Vegetation ☒ Water Quality ☒ Water Supply/Groundwater ☒ Wetland/Riparian ☒ Growth Inducement ☒ Land Use ☒ Cumulative Effects ☒ Other: Greenhouse Gas

Present Land Use/Zoning/General Plan Designation:
UC Irvine is not subject to local zoning regulations. Permitted uses in the 2007 UCI LRDP allow parking facilities.

Project Description: *(please use a separate page if necessary)*
The proposed project would construct an approximately 330,000-gross-square-foot surface parking lot that would accommodate up to 1,100 spaces on the approximately 7.6-acre site. The project scope includes vegetation clearing; grading; asphalt paving including two driveway connections to Health Sciences Drive; construction of pedestrian walkways; and installation of lighting to allow 24-hour use, drainage improvements, electric vehicle (EV) charging stations, landscaping, and irrigation. The proposed project would be constructed to allow for the future installation of an information booth and security access gate if deemed necessary at a later time.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "X".
If you have already sent your document to the agency please denote that with an "S".

	Air Resources Board		Office of Historic Preservation
	Boating & Waterways, Department of		Office of Public School Construction
	California Emergency Management Agency		Parks & Recreation, Department of
	California Highway Patrol		Pesticide Regulation, Department of
S	Caltrans District #12		Public Utilities Commission
	Caltrans Division of Aeronautics	S	Regional WQCB #8
	Caltrans Planning		Resources Agency
	Central Valley Flood Protection Board		Resources Recycling and Recovery, Department of
	Coachella Valley Mtns. Conservancy		S.F. Bay Conservation & Development Comm.
	Coastal Commission		San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
	Colorado River Board		San Joaquin River Conservancy
	Conservation, Department of		Santa Monica Mtns. Conservancy
	Corrections, Department of		State Lands Commission
	Delta Protection Commission		SWRCB: Clean Water Grants
	Education, Department of		SWRCB: Water Quality
	Energy Commission		SWRCB: Water Rights
S	Fish & Game Region #5		Tahoe Regional Planning Agency
	Food & Agriculture, Department of	S	Toxic Substances Control, Department of
	Forestry and Fire Protection, Department of	S	Water Resources, Department of
	General Services, Department of		
	Health Services, Department of		Other:
	Housing & Community Development		Other:
S	Native American Heritage Commission		

Local Public Review Period (to be filled in by lead agency)

Starting Date June 19, 2017 Ending Date July 18, 2017

Lead Agency (Complete if applicable):

Consulting Firm:	Applicant: University of California, Irvine
Address:	Address: 4199 Campus Drive, Suite 380
City/State/Zip:	City/State/Zip: Irvine, CA 92697-2325
Contact:	Phone: (949) 824-7058
Phone:	

Signature of Lead Agency Representative: Date: 6/16/17

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

Revised 2010

APPENDIX H

Response to Comments

Bison Avenue Surface Parking Lot

Draft Initial Study/Mitigated Negative Declaration
Public Review/Response to Comments

Public Review

The Draft Initial Study/Mitigated Negative Declaration (IS/MND), along with a Notice of Completion (NOC) and Notice of Intent to Adopt a Mitigated Negative Declaration (NOI), were circulated for public review and comment from June 19, 2017 through July 18, 2017. Copies of the document were submitted to the State Clearinghouse; local agencies; UCI faculty, staff, and other members of the campus community; and additional interested groups and persons. On June 16, 2017, a notice regarding the availability of the Draft IS/MND was published in the Orange County Register. Copies of the distribution list and notices are provided in this appendix.

Comments and Responses

Written comments were submitted by the agencies listed below. The letters and the responses to comments are presented on the following pages.

Commenting Agency	Date
County of Orange	June 22, 2017
Native American Heritage Commission	June 23, 2017
City of Irvine	July 13, 2017
California Department of Fish and Wildlife	July 14, 2017
Irvine Ranch Water District	July 14, 2017
Orange County Fire Authority	July 17, 2017
US Fish and Wildlife Service	July 18, 2017
State Clearinghouse	July 19, 2017

BISON AVENUE SURFACE PARKING LOT IS/MND MAILING LIST	
Orange County Public Library University Park Branch 4512 Sandburg Way Irvine, CA 92612	California Department of Transportation District 12 1750 E 4th Street, #100 Santa Ana, CA 92705
City of Irvine Community Development Dept. P.O. Box 19575 Irvine, CA 92623-9575	Orange County Fire Authority P.O. Box 57115 Irvine, CA 92619-7115
County of Orange Planning & Development Services 300 N. Flower Street	Irvine Ranch Water District 15600 Sand Canyon Ave. Irvine, CA 92618
Orange County Transportation Authority 550 South Main Street Orange, CA 92868	Public Utilities Commission 320 W. 4th Street, Suite 500 Los Angeles, CA 90013
California Department of Fish & Wildlife 3883 Ruffin Road San Diego, CA 92123	Transportation Corridor Agencies 125 Pacifica Irvine, CA 92618-3304
U.S. Fish & Wildlife Service Division of Ecological Services 2177 Salk Avenue, Suite 250 Carlsbad, CA 92008	Irvine Unified School District 5050 Barranca Parkway Irvine, CA 92604-4698
Regional Water Quality Control Board - Santa Ana Region 3737 Main Street, Suite 500 Riverside, CA 92501-3348	Metropolitan Water District P.O. Box 54153 Los Angeles, CA 90054
U.S. Army Corps of Engineers Los Angeles District 911 Wilshire Boulevard Los Angeles, CA 90017	Native American Heritage Commission 1550 Harbor Blvd, Suite 100 West Sacramento, CA 95691
CA Department of Toxic Substances Control 5796 Corporate Avenue Cypress, California 90630	Department of Water Resources 1416 9th Street Sacramento, CA 95814
South Coast Air Quality Management District 21865 East Copley Drive Diamond Bar, CA 91765-4182	Irvine Company 550 Newport Center Drive Newport Beach, California, 92660
Southern California Association of Governments 818 West 7th Street, 12th Floor Los Angeles, CA 90017	

June 22, 2017 NCL-17-040

Lindsey Hashimoto
Office of Environmental Planning and Sustainability
University of California, Irvine
4199 Campus Drive, Suite 380
Irvine, CA 92697

Subject: Notice of Intent to Adopt a MND for the Bison Avenue Surface Parking Lot

Dear Lindsey Hashimoto:

The County of Orange has reviewed the Notice of Intent to Adopt a MND for the Bison Avenue Surface Parking Lot and has no comments at this time. We would like to be advised of any further developments on the project. Please continue to keep us on the distribution list for future notifications related to the project.

Sincerely,

for Laree Alonso

Laree Alonso, Manager, Planning Division
OC Public Works Service Area/OC Development Services
300 North Flower Street
Santa Ana, California 92702-4048
Laree.alonso@ocpw.ocgov.com

Response to the County of Orange

Comment 1: Letter indicates that the County has no comments on the proposed project. No response necessary.

STATE OF CALIFORNIA Edmund G. Brown Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone (916) 373-3710
Fax (916) 373-5471

June 23, 2017

Richard Demerjian
University of California, Irvine
4199 Campus Drive, Suite 380
Irvine, CA 92697

Sent via e-mail: rgdemerj@uci.edu

Re: SCH# 2017061043, Bison Avenue Surface Parking Lot Project, City of Irvine; Orange County, California

Dear Mr. Demerjian:

The Native American Heritage Commission (NAHC) has reviewed the Mitigated Negative Declaration prepared for the project referenced above. The review included the Project Description, and the Evaluation of Environmental Impacts, section 4.4 Cultural Resources prepared by the University of California, Irvine. We have the following concerns:

1. There are no mitigation measures specifically addressing Tribal Cultural Resources separately. Mitigation measures must take Tribal Cultural Resources into consideration as required under AB-52, with or without consultation occurring. **Mitigation language for archaeological resources** (such as "data recovery") is not always appropriate for or similar to measures specifically for handling Tribal Cultural Resources.

2. Determination for Tribal Cultural Resources should be the same as that for Archaeological Resources. Both can be inadvertently discovered during construction and mitigation should be detailed for both sections.

3. Cultural Resources assessments are outdated (2007). Current assessments should adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources.

4. The timeline for the Most Likely Descendant (MLD) to recommend disposition for Native American human remains is inaccurate. The MLD has 48 hours to make their preferences known to the land owner (Pubic Resources Code § 5097.98 (a))

The California Environmental Quality Act (CEQA)[1], specifically Public Resources Code section 21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment.[2] If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an environmental impact report (EIR) shall be prepared.[3] In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources with the area of project effect (APE).

CEQA was amended in 2014 by Assembly Bill 52. (AB 52).[4] **AB 52 applies to any project for which a notice of preparation or a notice of negative declaration or mitigated negative declaration is filed on or after July 1, 2015.** AB 52 created a separate category for "tribal cultural resources"[5], that now includes "a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment.[6] Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.[7] Your project may also be subject to **Senate Bill 18 (SB 18)** (Burton, Chapter 905, Statutes of 2004), Government Code 65352.3, if it also involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space. **Both SB 18 and AB 52 have tribal consultation requirements**. Additionally, if your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966[8] may also apply.

[1] Pub. Resources Code § 21000 et seq.
[2] Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, § 15064.5 (b); CEQA Guidelines Section 15064.5 (b)
[3] Pub. Resources Code § 21080 (d); Cal. Code Regs., tit. 14, § 15064 subd.(a)(1); CEQA Guidelines § 15064 (a)(1)
[4] Government Code 65352.3
[5] Pub. Resources Code § 21074
[6] Pub. Resources Code § 21084.2
[7] Pub. Resources Code § 21084.3 (a)
[8] 154 U.S.C. 300101, 36 C.F.R. § 800 et seq.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

Agencies should be aware that AB 52 does not preclude agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52. For that reason, we urge you to continue to request Native American Tribal Consultation Lists and Sacred Lands File searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/. Additional information regarding AB 52 can be found online at http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf, entitled "Tribal Consultation Under AB 52: Requirements and Best Practices".

The NAHC recommends lead agencies consult with all California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources.

A brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments is also attached.

Please contact me at gayle.totton@nahc.ca.gov or call (916) 373-3710 if you have any questions.

Sincerely,

Gayle Totton

Gayle Totton, B.S., M.A., Ph.D
Associate Governmental Project Analyst

Attachment

cc: State Clearinghouse

Pertinent Statutory Information:

Under AB 52:

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a **lead agency** shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice.

A **lead agency** shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project.[9] and **prior to the release of a negative declaration, mitigated negative declaration or environmental impact report**. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code § 65352.4 (SB 18).[10]

The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

a. Alternatives to the project.
b. Recommended mitigation measures.
c. Significant effects.[11]

1. The following topics are discretionary topics of consultation:
   a. Type of environmental review necessary.
   b. Significance of the tribal cultural resources.
   c. Significance of the project's impacts on tribal cultural resources.

If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. [12]

With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process **shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code sections 6254 (r) and 6254.10.** Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public.[13]

If a project may have a significant impact on a tribal cultural resource, **the lead agency's environmental document shall discuss** both of the following:

a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code section 21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource.[14]

Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.[15]

Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code section 21080.3.2 **shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program**, if determined to avoid or lessen the impact pursuant to Public Resources Code section 21082.3, subdivision (b), paragraph 2, and shall be fully enforceable.[16]

If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, **the lead agency shall consider feasible mitigation** pursuant to Public Resources Code section 21084.3 (b).[17]

An environmental impact report **may not be certified**, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code sections 21080.3.1 and 21080.3.2 and concluded pursuant to Public Resources Code section 21080.3.2.
b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

---

[9] Pub. Resources Code § 21080.3.1, subds. (d) and (e)
[10] Pub. Resources Code § 21080.3.1 (b)
[11] Pub. Resources Code § 21080.3.2 (a)
[12] Pub. Resources Code § 21080.3.2 (a)
[13] Pub. Resources Code § 21082.3 (c)(1)
[14] Pub. Resources Code § 21082.3 (b)
[15] Pub. Resources Code § 21080.3.2 (b)
[16] Pub. Resources Code § 21082.3 (a)
[17] Pub. Resources Code § 21082.3 (e)

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code section 21080.3.1 (d) and the tribe failed to request consultation within 30 days.[18]

This process should be documented in the Tribal Cultural Resources section of your environmental document.

Under SB 18:

Government Code § 65352.3 (a) (1) requires consultation with Native Americans on general plan proposals for the purposes of "preserving or mitigating impacts to places, features, and objects described § 5097.9 and § 5091.993 of the Public Resources Code that are located within the city or county's jurisdiction. Government Code § 65560 (a), (b), and (c) provides for consultation with Native American tribes on the open-space element of a county or city general plan for the purposes of protecting places, features, and objects described in Sections 5097.9 and 5097.993 of the Public Resources Code.

- SB 18 applies to **local governments** and requires them to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf
- Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.**[19]
- There is no Statutory Time Limit on Tribal Consultation under the law.
- Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research,[20] the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code sections 5097.9 and 5097.993 that are within the city's or county's jurisdiction.[21]
- Conclusion Tribal Consultation: Consultation should be concluded at the point in which:
  - The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
  - Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation.[22]

NAHC Recommendations for Cultural Resources Assessments:

- Contact the NAHC for:
  - A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
  - A Native American Tribal Contact List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.
    - The request form can be found at http://nahc.ca.gov/resources/forms/.
- Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
  - If part or the entire APE has been previously surveyed for cultural resources.
  - If any known cultural resources have been already been recorded on or adjacent to the APE.
  - If the probability is low, moderate, or high that cultural resources are located in the APE.
  - If a survey is required to determine whether previously unrecorded cultural resources are present.
- If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

[18] Pub. Resources Code § 21082.3 (d)
[19] (Gov. Code § 65352.3 (a)(2)).
[20] pursuant to Gov. Code section 65040.2,
[21] (Gov. Code § 65352.3 (b)).
[22] (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Examples of Mitigation Measures That May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

- Avoidance and preservation of the resources in place, including, but not limited to:
  - Planning and construction to avoid the resources and protect the cultural and natural context.
  - Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
- Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
  - Protecting the cultural character and integrity of the resource.
  - Protecting the traditional use of the resource.
  - Protecting the confidentiality of the resource.
- Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
- Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed.[23]
- Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated.[24]

The lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.

- Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources.[25] In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
- Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
- Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5, subdivisions (d) and (e) (CEQA Guidelines section 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

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[23] (Civ. Code § 815.3 (c)).
[24] (Pub. Resources Code § 5097.991).
[25] per Cal. Code Regs., tit. 14, section 15064.5(f) (CEQA Guidelines section 15064.5(f)).

Response to the Native American Heritage Commission

Comment 1: At the request of the Gabrieleño Band of Mission Indians – Kizh Nation, a tribal monitor will be on the project site during all earthmoving activities alongside an archeological and paleontological monitor. This has been the standard practice by the campus since the implementation of AB 52, and consultation will continue with the Gabrieleño on this and all future projects. In the event that tribal cultural resources are found during earthmoving activities, further consultation with the Gabrieleño regarding the resource would be required to determine movement, storage, and handling.

Comment 2: Please see response to Comment 1 above.

Comment 3: The Cultural Resources Assessment prepared for the 2007 LRDP included tribal cultural resources. Although the assessment does not detail exact practices for the preservation of tribal cultural resources, in the event that tribal cultural resources are found during earthmoving activities, further consultation with the Gabrieleño regarding the resources would be required to determine movement, storage, and handling.

Comment 4: Language has been updated on page 4.4-3 of the Final IS/MND.

Community Development
1 Civic Center Plaza, Irvine, CA 92606-5208
cityofirvine.org
949-724-6000

July 13, 2017

Ms. Lindsey Hashimoto
Office of Environmental Planning and Sustainability
4199 Campus Drive, Suite 750
Irvine, CA 92612

Subject: Bison Avenue Surface Parking Lot Initial Study (IS) and Mitigated Negative Declaration (MND)

Dear Ms. Hashimoto:

Thank you for the opportunity to review the Initial Study (IS) and Mitigated Negative Declaration (MND) for the Bison Avenue Surface Parking Lot. The site is located southeast of Bison Avenue, north of California Avenue, and west of Health Sciences Drive in Planning Area 50. The proposed project would construct a 7.6-acre parking lot with approximately 1,100 spaces at the West Campus Sector of UCI. The scope of work also includes vegetation clearing, grading, light installations, pedestrian walkways and asphalt paving for two driveway connections to Health Sciences Drive.

Staff completed its review and has provided comments. If you have any questions, please contact me at 949-724-6364 or by email at jequina@cityofirvine.org.

Sincerely,

Justin Equina
Associate Planner

Enclosure: Staff comments

cc: Bill Jacobs, Principal Planner

ENCLOSURE
INTERAGENCY REVIEW
UCI BISON AVENUE PARKING LOT

General Comments

1. In the traffic analysis findings, explain how the proposed project would affect the 2007 LRDP Mitigation Measure findings. Additionally, confirm the disposition and timing of the improvements, and if any changes would occur from the proposed project.

2. Can the project include pedestrian crossings through undeveloped areas of UCI? The City has received multiple requests from businesses located along California between Academy and Bison for pedestrian connectivity onto undeveloped areas of UCI.

Conceptual Site Plan

3. Provide a full access driveway on Health Science Road or one-way drive aisles inside the parking lot. There is a concern about the traffic circulation within the parking lot, which may cause conflicts along the main road (Health Science Road).

Page 14.14-3

4. Explain how the AM and PM peak hour trips were determined in Table 4.14-1. Typically peaks are about ten percent of the ADT, and both of AM and PM peak hour trips are less.

Traffic Study

5. Clarify the trip generation rate for the proposed number of parking spaces in Section 1.3 Methodology. Does the campus have existing parking lot counts that can be used for this project?

6. Figure 3-1 shows 5 percent of the project trips leading to and from Ring Road, which seems high; the volume should be negligible.

7. Switch the percentages between East and West Peltason in Figure 3.1. East Peltason should show 10 percent and West Peltason should show 20 percent.

8. Clarify the LRDP Buildout With Project in Section 4.2. What is the assumed year? Is it 2035, similar to the ITAM model?

9. Discuss pedestrian, bicycle and mass transit in Section 4.0 Impact Analysis.

10. In Appendix C, include the following intersections in the study area to cover those people arriving and departing in south county via I-405 and University Drive:
    a. University/California
    b. University/Campus
    c. University/Mesa
    d. California/Academy

11. In Appendix C, take into consideration the City's University Drive widening capital improvement project.

General Comments

12. In the traffic analysis findings, explain how the proposed project would affect the 2007 LRDP Mitigation Measure findings. Additionally, confirm the disposition and timing of the improvements, and if any changes would occur from the proposed project.

13. Can the project include pedestrian crossings through undeveloped areas of UCI? The City has received multiple requests from businesses located along California between Academy and Bison for pedestrian connectivity onto undeveloped areas of UCI.

Conceptual Site Plan

14. Provide a full access driveway on Health Science Road or one-way drive aisles inside the parking lot. There is a concern about the traffic circulation within the parking lot, which may cause conflicts along the main road (Health Science Road).

Page 14.14-3

15. Explain how the AM and PM peak hour trips were determined in Table 4.14-1. Typically peaks are about ten percent of the ADT, and both of AM and PM peak hour trips are less.

Traffic Study

16. Clarify the trip generation rate for the proposed number of parking spaces in Section 1.3 Methodology. Does the campus have existing parking lot counts that can be used for this project?

17. Figure 3-1 shows 5 percent of the project trips leading to and from Ring Road, which seems high; the volume should be negligible.

18. Switch the percentages between East and West Peltason in Figure 3.1. East Peltason should show 10 percent and West Peltason should show 20 percent.

19. Clarify the LRDP Buildout With Project in Section 4.2. What is the assumed year? Is it 2035, similar to the ITAM model?

20. Discuss pedestrian, bicycle and mass transit in Section 4.0 Impact Analysis.
21. In Appendix C, include the following intersections in the study area to cover those people arriving and departing in south county via I-405 and University Drive:
    e. University/California
    f. University/Campus
    g. University/Mesa
    h. California/Academy

22. In Appendix C, take into consideration the City's University Drive widening capital improvement project.

Response to the City of Irvine

Comment 1: In compliance with the 2007 LRDP mitigation measure TRA-1D and as discussed in the previous 2016 Classroom Building Final IS/MND responses to comments, traffic counts were completed in February 2017 for all UCI Transportation Improvement Program (UCITIP) intersections that were analyzed as part as the 2007 Long Range Development Plan (LRDP). These findings were previously sent to the City in the response to comments for the East Campus Student Apartments Phase IVA project. All UCITIP intersections were found to be operating at acceptable levels of service (LOS) as shown below, and at this time, no further improvements to LRDP UCITIP intersections are needed.

UCITIP Intersections				
	Existing Conditions (February 2017)			
	AM Peak Hour		PM Peak Hour	
Intersection Location	**ICU**	**LOS**	**ICU**	**LOS**
Von Karman Ave & Campus Dr	0.61	B	0.69	B
Jamboree Rd & Campus Dr	0.64	B	0.65	B
Jamboree Rd & Birch St	0.59	A	0.55	A
Jamboree Rd & MacArthur Blvd	0.62	B	0.68	B
Carlson Ave & Michelson Dr	0.49	A	0.52	A
Carlson Ave & Campus Dr	0.45	A	0.60	A
Harvard Ave & Michelson Dr	0.73	C	0.88	D
University Dr & Campus Dr	0.81	D	0.75	C
University Dr & California	0.72	C	0.65	B
Culver Dr & Michelson Dr	0.65	B	0.76	C
Culver Dr & University Dr	0.73	C	0.78	C
Bonita Cyn. Rd & Newport Coast Dr	0.48	A	0.54	A

The proposed project would not affect the 2007 LRDP mitigation measure findings as it would not result in an increase of the campus population. Therefore, there are no changes to the analysis of the 2007 LRDP mitigation measure TRA-1 previously sent to the City as part of the response to comments for both the Classroom Building and East Campus Student Apartments Phase IVA projects.

Comment 2: At this time, no additional pedestrian crossings are included as part of the project beyond the sidewalk proposed along Health Sciences Road. As future development occurs on the campus, pedestrian paths would be constructed in order to increase connectivity between the campus and the surrounding community.

Comment 3: The proposed project is design-build and what is shown in the Final IS/MND is a conceptual site plan. The design will change once a contractor is selected. Issues with internal circulation of the project and along Health Sciences Road would be addressed during the review process between the contractor and the University. In addition, UCI would retain a third-party traffic consultant to review the circulation prior to finalizing the design.

Comment 4: Measured traffic volumes entering and exiting the UCI campus near the project site were used to derive the pattern of parking demand over the duration of a full day. The peak to average daily trip (ADT) ratio derived for the proposed project traffic is assumed to match the ratios of the adjacent roadway traffic because it is representative of trips to and from nearby existing parking lots. The traffic counts indicate that for this area of the campus, the morning peak occurs at 8:45 am and is 7.3% of the daily ADT, and the evening peak occurs at 4:30 pm and is 6.9% of the ADT. This is due to nature of the population of UCI, which consists largely of students who do not necessarily travel during standard peak hours.

Comment 5: As discussed above, existing traffic counts for the roadways within the vicinity of the project site were used to derive the parking lot trip rates. These roadway counts were utilized to reflect the specific trip patterns in this portion of the campus, and are provided in the appendices of the Traffic Study. This is included in the Final IS/MND as Appendix F.

Comment 6: There are a number of academic and residential facilities along Bison Avenue between Peltason Drive and Ring Road, which represent the origins or destinations for the five percent of parking lot trips assigned to that area in the analysis.

Comment 7: The percentage of traffic assigned to East Peltason (20 percent) is assumed to be higher than West Peltason because East Peltason is the primary roadway to/from the east. To/from the west are two roadways to travel by, which are West Peltason (10 percent) and California Avenue (15 percent).

Comment 8: For traffic modeling of the proposed project, LRDP buildout has a horizon year of 2035 and is consistent with the ITAM model.

Comment 9: Transit, bicycle, and pedestrian facilities are discussed on page 4.14-7 of the Final IS/MND.

Comment 10: As discussed in Section 3.0 of the Traffic Study, the proposed project would not result in an increase in the campus population. As such, the number of vehicle trips entering and exiting the campus would not increase as a result of the project. Only the roadways in the immediate vicinity of the proposed project may see an increase in traffic due to the project, which are evaluated in the Traffic Study. Intersections further removed, such as those referenced in the comment, would not experience a significant increase in traffic volume.

Comment 11: As discussed in the response to Comment 10 above, due to the distance of the proposed project and because the vehicle trips entering and exiting the campus would remain the same, traffic volumes at University Drive would not experience a significant change as a result of the proposed project.

Comments 12 through 22: These comments are duplicates of Comments 1 through 11. Please refer above for responses.

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
www.wildlife.ca.gov

July 14, 2017

Mr. Richard Demerjian
University of California, Irvine
Office of Environmental Planning and Sustainability
4199 Campus Drive, Suite 380
Irvine, CA 92697-2325
rgdemerj@uci.edu

Subject: Comments on the Notice of Intent to Adopt a Mitigated Negative Declaration for the Bison Avenue Surface Parking Lot, Irvine, CA (SCH# 2017061043)

Dear Mr. Demerjian:

The California Department of Fish and Wildlife (Department) has reviewed the above-referenced Notice of Intent to Adopt a Mitigated Negative Declaration (MND) for the Bison Avenue Surface Parking Lot Project, dated March 2017. The following statements and comments have been prepared pursuant to the Department's authority as Trustee Agency with jurisdiction over natural resources affected by the project (California Environmental Quality Act [CEQA] Guidelines § 15386) and pursuant to our authority as a Responsible Agency under CEQA Guidelines section 15381 over those aspects of the proposed project that come under the purview of the California Endangered Species Act (CESA; Fish and Game Code § 2050 *et seq.*) and Fish and Game Code section 1600 *et seq*. The Department also administers the Natural Community Conservation Planning (NCCP) program. The University of California, Irvine (UCI) is a participating landowner under the Central/Coastal Orange County NCCP/Habitat Conservation Plan (HCP).

The 7.6-acre project site is located adjacent to Bison Avenue, California Avenue, and Health Sciences Drive on the UCI campus in the City of Irvine. Project activities include the development of a parking lot through vegetation clearing, grading, paving, and installation of lighting, landscaping, and irrigation. A moderately sized patch of coastal sage scrub exists in the western portion of the project site, and many-stemmed dudleya (*Dudleya multicaulis*) and southern tarplant (*Hemizonia parryi* ssp. *australis)* have potential to occur on site. Both plants are included on the Department's Special Plants list and are designated as Rare Plant Rank 1B by the California Native Plant Society.

While impacts to biological resources are stated to be discussed in Section 4.3 of the 2007 Long Range Development Plan Environmental Impact Report (LRDP EIR, SCH# 2006071024), and a project-specific Biological Constraints Analysis and Jurisdictional Delineation was prepared by LSA Associates for the project (MND, page 4.3-2), no additional biological analysis besides the Initial Study Checklist was provided with the current environmental document. Surveys described in the LRDP EIR took place in May and June of 2006.

The Department offers the following comments and recommendations to assist UCI in avoiding or minimizing potential project impacts on biological resources.

1. Because no project-specific biological analysis was provided with the MND beyond the Initial Study Checklist, the Department recommends that, in order to adequately review the significance of impacts to biological resources, such a report should be made available in the final MND as an appendix. This report should include the following:

    a. Up-to-date surveys showing plant and wildlife communities within the project area,

    b. a figure depicting their locations within the sphere of influence,

    c. a description of the survey methodology or protocol used for general plant and animal species, as well as sensitive or listed species. If there were variances from standard survey methodologies or protocols, please provide the background and rationale for the variances,

    d. a list of observed plant and animal species, including sensitive and listed species; we recommend that the California Natural Diversity Database (CNDDB) be queried in order to obtain historical records of sensitive plant species and wildlife within the sphere of influence,

    e. a list of appropriate mitigation measures to avoid, minimize, or mitigate for impacts to plant and animal species and their habitats,

    f. a description, including acreages, of the habitat types observed within the current project footprint including any off-site impacts and the permanent and temporary impacts to each of these habitat types, and

    g. a list of appropriate mitigation measures to avoid, minimize, or mitigate for those impacts, including acquisition and preservation in perpetuity for permanent and temporary impacts to upland habitats.

2. The MND states that, "[t]he two special status plant species are the many-stemmed dudleya and the southern tarplant. Both plants are included on the California Department of Fish and Wildlife (CDFW) Special Plants list and are designated as Rare Plant Rank 1B by the California Native Plant Society (CNPS); however, neither were observed during the surveys" (page 4.3-2).

    Surveys of the project area took place in 2006. Since that time, southern California habitats have experienced variable climatic conditions from extreme drought (2012-2017) to heavy rains (2017). After long periods of drought followed by rain, seasonal and focused survey results may differ from those conducted during dry periods, as seeds that have been dormant during drier periods may germinate. Based on these conditions and lack of additional information provided, it is unclear that the project would result in less than significant impacts to all sensitive biological resources, including sensitive plant species; therefore, the Department concludes that the given baseline is inappropriate to the procedural and substantive requirements of CEQA. In order to meet those requirements, the final MND should include site-specific surveys conducted at the appropriate times of year to actually detect species, and should not be done opportunistically. Seasonal variations in use by wildlife in the project area should be addressed. Recent, focused, species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, should be included in the impact analysis.

3. Additionally, the MND states that, "[b]iological resources issues are discussed in Section 4.3 of the 2007 LRDP EIR. A project-specific Biological Constraints Analysis and Jurisdictional Delineation was prepared by LSA" (page 4.3-2). Pursuant to CEQA Guidelines section 15150(c), Incorporation by Reference, the details of impacts to biological resources, survey dates and data, mitigation obligations, as well as how the proposed project is designed to be compliant with the NCCP/HCP, should be summarized in the final MND.

4. Mitigation measure BR-1 states that, "surveys for active nests shall be performed within 30 days prior to the commencement of any clearing or grading activities at locations within 500 feet of the approved limits of disturbance where suitable nesting habitat exists" (page 39). Preconstruction surveys 30 days prior to construction are insufficient to reduce potential impacts to nesting birds below significant, as birds would have ample time to nest in suitable habitat between the preconstruction survey and the commencement of construction activities. We recommend that BR-1 be amended into a more robust mitigation measure that incorporates the following language:

   In order to avoid impacts to nesting birds, project activities shall occur outside of the peak avian breeding season, which runs from February 1 through September 1. If project construction is necessary during the bird breeding season, a qualified biologist with experience in conducting bird breeding surveys shall conduct weekly bird surveys for nesting birds, within three days prior to the work in the area, and ensure no nesting birds in the project area would be impacted by the project. If an active nest is identified, a buffer shall be established between the construction activities and the nest so that nesting activities are not interrupted. The buffer shall be a minimum width of 300 feet (500 feet for raptors), be delineated by temporary fencing, and remain in effect as long as construction is occurring or until the nest is no longer active. No project construction shall occur within the fenced nest zone until the young have fledged, are no longer being fed by the parents, have left the nest, and will no longer be impacted by the project. Reductions in the nest buffer distance may be appropriate depending on the avian species involved, ambient levels of *human activity, screening vegetation, or possibly other factors.*

5. Mitigation measure BR-3 mentions that Best Management Practices (BMPs) would be implemented to prevent incidental discharges and/or fills in the event that construction starts prior to obtaining appropriate permits for work in jurisdictional riparian areas. In order for this measure to be sufficient to reduce impacts to Department jurisdictional areas to below significant, the BMPs should be specifically described in the final MND. An additional mitigation measure or measures may be appropriate.

6. The polyphagous shot-hole borer (PSHB) is an invasive ambrosia beetle that introduces fungi and other pathogens into host trees. The adult female tunnels galleries into the cambium of a wide variety of host trees, where it lays its eggs and propagates the *Fusarium* fungi species for the express purpose of feeding its young. These fungi cause *Fusarium* dieback disease, which interrupts the transport of water and nutrients in at least 43 reproductive host tree species, with impacts to other host tree species as well. With documented occurrences within UCI's urban forest and natural areas, the spread of PSHB could have further significant impacts in the local ecosystem. Therefore, we recommend the final MND include the following:

   a. a thorough discussion of the direct, indirect, and cumulative impacts that could occur from the potential spread of PSHB as a result of proposed activities in the final MND;

   b. an analysis of the likelihood of the spread of PSHB as a result of the invasive species' proximity to above referenced activities;

   c. figures that depict potentially sensitive or susceptible vegetation communities within the project area, the known occurrences of PSHB within the project area, and PSHB's proximity to above referenced activities; and

   d. a mitigation measure or measure(s) within the final MND that describe BMPs that bring impacts of the project on the spread of PSHB below a level of significance. Examples of such BMPs include:

      i. education of on-site workers regarding PSHB and its spread;
      ii. reporting sign of PSHB infestation, including sugary exudate ("weeping") on trunks or branches and PSHB entry/exit-holes (about the size of the tip of a ballpoint pen), to the Department and UCR's Eskalen Lab;
      iii. equipment disinfection;
      iv. pruning infected limbs in infested areas where project activities may occur;
      v. avoidance and minimization of transport of potential host tree materials;
      vi. chipping potential host materials to less than 1 inch and solarization, prior to delivering to a landfill;
      vii. chipping potential host materials to less than 1 inch, and solarization, prior to

composting on-site;

viii. solarization of cut logs; and/or

ix. burning of potential host tree materials.

Please refer to UCR's Eskalen lab website for more information regarding PSHBs: http://eskalenlab.ucr.edu/pshb.html.

We appreciate the opportunity to comment on the draft MND for this project and to assist UCI in further minimizing and mitigating project impacts to biological resources. The Department requests an opportunity to review and comment on any response that the UCI has to our comments and to receive notification of the forthcoming hearing date for the project (CEQA Guidelines; §15073(e)). If you have any questions or comments regarding this letter, please contact Jennifer Turner at (858-467-2717), or via email at jennifer.turner@wildlife.ca.gov.

Sincerely,

Gail K. Sevrens
Environmental Program Manager

ec: Christine Medak (U.S. Fish and Wildlife Service)
Scott Morgan (State Clearinghouse)
Lindsey Hashimoto (University of California, Irvine) hashimol@uci.edu

Response to the California Department of Fish and Wildlife

Comment 1: The Biological Constraints Analysis is included as Appendix B of the Final IS/MND.

Comment 2: In addition to the Biological Constraints Analysis, the focused survey results for the many-stemmed dudleya and southern tarplant are included as Appendix C of the Final IS/MND.

Comment 3: The Biological Constrains Analysis, Jurisdictional Delineation, and a memo with the focused survey results are included as Appendices B, C, and D of the Final IS/MND.

Comment 4: Mitigation measure BR-1 has been revised on page 4.3-6 of the Final IS/MND.

Comment 5: In compliance with mitigation measure Hyd-2A, best management practices (BMPs) would be implemented as part of the erosion control plan that would reduce sediment and other pollutants to protect downstream areas during site grading and construction. In addition, consultation with CDFW, RWQCB, and Army Corps of Engineers would occur prior to construction, and the University would implement any further recommendations beyond these BMPs to prevent potential impacts to the existing drainages.

Comment 6:

a. Campus trees have been previously surveyed and, as shown in the attached map, PSHB infested trees exist on the project site. As such, potential spread of PSHB could occur during the removal of the infested trees. UCI has been working closely with UC Riverside and UC Division of Agriculture and Natural Resources (ANR) regarding monitoring and treatment of infested trees throughout the campus, and UCI's Facilities Management, who is managing the construction of the project, has been trained in PSHB handling. As is standard practice on the UCI campus, all infested trees are taken to a local facility and handled separately from non-infested trees to eliminate the potential spread of PSHB during the mulching process. See 6(d) below, which discusses PSHB BMPs currently in practice on campus. Therefore, although removal of infested trees could spread PSHB, implementation of the standard campus BMPs would reduce potential impacts to a less than significant level.

b. Please see response 6(a) above. The likelihood of the spread of PSHB due to construction of the proposed project is low due to standard campus practices regarding PSHB infested trees.

c. Please see the attached map. The red dots indicate PSHB infested trees on and adjacent to the project site. Excluding the drainages that would be removed as part of the project, no sensitive vegetation communities are located in the vicinity of the site. Spread to the nearest sensitive vegetation community, a mitigation site located across Health Sciences Road and to the east of the Environmental Health and Safety building, is unlikely due to standard practices observed by the campus as discussed in 6(a) and 6(d).

d. As discussed above, PSHB management is standard practice on the campus and currently implements the following BMPs listed within the comment:

    i. Education of on-site workers regarding PSHB and its spread.

    ii. Reporting signs of PSHB infestation to UC Riverside and UC ANR.

iii. Equipment disinfection.

Other BMPs listed are not applicable to the campus because, as discussed above in 6(a), all infested trees are taken to a local facility to be mulched and are handled separately from non-infested trees. Pruning is not applicable as all PSHB infested trees on the project site would be removed.

In addition, many infested trees throughout the campus have been inoculated as part of PSHB management research, and all newly planted landscaping throughout the campus is PSHB resistant.


Jeremiah Tao, MD, FACS
Bison Ave
California Ave
Health Sciences Rd

Irvine Ranch
WATER DISTRICT

July 14, 2017

Ms. Lindsey Hashimoto, Senior Planner
Office of Environmental Planning and Sustainability
University of California, Irvine
4199 Campus Drive, Suite 380
Irvine, CA 92697

Re: NOI/Draft MND for Bison Avenue Surface Parking Lot

Dear Ms. Hashimoto:

Irvine Ranch Water District (IRWD) has received the University of California, Irvine's (UCI) Notice of Intent (NOI) for the Bison Avenue Surface Parking Lot Draft Mitigated Negative Declaration (MND). IRWD has reviewed the NOI/Draft MND and offers the following comments.

IRWD has existing recycled, potable and sewer facilities located near the project improvements' boundary area. Coordination with IRWD is required to protect-in-place the existing IRWD utilities to ensure that said facilities remain in service during the project's construction. For coordination questions, please contact Eric Akiyoshi, Principal Engineer at (949) 453-5552.

IRWD appreciates the opportunity to review and comment on the NOI/Draft MND. If you have any questions or if you require additional information, please contact me at (949) 453-5325 or Jo Ann Corey, Environmental Compliance Specialist at (949) 453-5326.

Sincerely,

FMSanchez

Fiona M. Sanchez
Director of Water Resources

cc: Eric Akiyoshi, IRWD
Jo Ann Corey, IRWD

Response to the Irvine Ranch Water District

Comment 1: The project manager has been notified and will coordinate with IRWD during the design phase to ensure IRWD-owned recycled, potable, and sewer facilities are not impacted by construction of the proposed project.

ORANGE COUNTY FIRE AUTHORITY

P.O. Box 57115, Irvine, CA 92619-7115 • 1 Fire Authority Road, Irvine, CA 92602

Jeff Bowman, Fire Chief **(714) 573-6000** **www.ocfa.org**

July 17, 2017

University of California
Attn: Lindsey Hashimoto, Senior Planner
Environmental Planning & Sustainability
4199 Campus Dr, Suite 380
Irvine, CA 92697-2325

Subject: Notice of Intent to Adopt a Mitigated Negative Declaration: Bison Avenue Surface parking Lot

To whom it may concern:

Thank you for the opportunity to review the subject document. As stated in the document, the Orange County Fire Authority (OCFA) provides fire protection and emergency medical services response to the project area. OCFA agrees that since the project does not increase residents or faculty it would have a Less Than Significant Impact on fire protection and emergency services.

The data used to determine the impact was over ten years old, the attached document provides updated statistics from 2016. We would like to point out that even though this project is considered to have Less than Significant Impact on fire protection and emergency services the calls generated by UCI are about 30% of Fire Station 04 responses, the call volume has increased approximately 38% since the data currently used in this document. The current document also uses a Standards of Cover document for reference that was never adopted. A revised link to the current Standards of Cover document has been added to the attachment.

If you have any questions, please feel free to contact me.

Sincerely,

Tamera Rivers
Management Analyst
(714) 573-6199

Response to the Orange County Fire Authority

Comment 1: The language has been incorporated on page 4.12-1 of the Final IS/MND.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

In Reply Refer To:
FWS-OR-17B0557-17CPA0165

July 18, 2017
Sent by Email

Lindsey Hashimoto, Senior Planner
Office of Environmental Planning and Sustainability
University of California, Irvine
4199 Campus Drive, Suite 380
Irvine, California 92697

Subject: Notice of Intent to Adopt a Mitigated Negative Declaration for the Bison Avenue Surface Parking Lot Project, Orange County, California

Dear Ms. Hashimoto:

The U.S. Fish and Wildlife Service (Service) has reviewed the Notice of Intent (NOI), received on June 19, 2017, for the Bison Avenue Surface Parking Lot Project (project), which is located on the University of California, Irvine (UCI) campus in the City of Irvine, Orange County, California. The comments provided herein are based upon the information provided in the NOI, our knowledge of sensitive and declining vegetation communities, and our participation in regional conservation planning efforts.

The primary concern and mandate of the Service is the protection of public fish and wildlife resources and their habitats. The Service has legal responsibility for the welfare of migratory birds, anadromous fish, and threatened and endangered animals and plants occurring in the United States. The Service is also responsible for administering the Federal Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*), including habitat conservation plans (HCP) developed under section 10(a)(1) of the Act.

UCI will construct a parking lot on a 7.6 acre site adjacent to Bison and California Avenue on the west campus. Construction will involve vegetation clearing, grading, asphalt paving, lighting, drainage improvement, landscaping, and irrigation.

To facilitate the evaluation of the proposed project from the standpoint of fish and wildlife protection, we recommend that the Mitigated Negative Declaration (MND) be revised to adequately address potential impacts to the many-stemmed dudleya (*Dudleya multicaulis*; dudleya) and southern tarplant (*Centromadia parryi* spp. *Australis*; tarplant). Both species have occurred on the UCI campus. Although the project is covered under the Central and Coastal Subregion Natural Community Conservation Plan and HCP (plan), dudleya and tarplant are not covered species under the plan, so potential impacts should be identified in the MND and appropriately mitigated.

A one-day biological survey of the study area was conducted on February 23, 2016, outside of the blooming period for both the dudleya and tarplant (LSA 2016). The dudleya blooms from April to July, and the tarplant blooms from May to November. The dudleya is a perennial geophyte, and the tarplant is an annual herb. Due to these life histories, the dudleya and tarplant would not be readily detectable during the February 2016 field survey because the survey was outside of their blooming periods. Therefore, it is unknown if the dudleya or tarplant are present in the project area where they could be impacted. We recommend that rare plant surveys be conducted during the appropriate blooming periods to detect rare plants, including the dudleya and tarplant.

We appreciate the opportunity to comment on the referenced NOI. If you have any questions regarding this letter, please contact Colleen Draguesku of this office at (760) 431-9440, extension 241.

Sincerely,

for Karen A. Goebel
Assistant Field Supervisor

cc:
Simona Altman, California Department of Fish and Wildlife

LITERATURE CITED

[LSA] LSA Associates, Inc. 2016. Biological constraints analysis of the University of California, Irvine California Avenue parking study. Prepared for Carl Taylor, Huitt-Zollars, Inc. Prepared by Chris Meloni. Irvine, California. Dated March 15, 2016.

Response to the US Fish and Wildlife Service

Comment 1: The biologist visited the project site on February 23, 2016, February 28, 2017, and July 19, 2017. Due to the heavy amount of rainfall in January 2017, the February 28, 2017 survey coincided with the greatest likelihood of observing many-stemmed dudleya, and the July 19, 2017 survey coincided with the greatest likelihood of observing the southern tarplant. During all three of the surveys throughout 2016 and 2017, neither many-stemmed dudleya nor southern tarplant were observed on the project site and it was concluded that it is unlikely that substantial populations of either species occur. The memo with the results from the surveys is included as Appendix C of the Final IS/MND.

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Edmund G. Brown Jr.
Governor

Ken Alex
Director

July 19, 2017

Richard Demerjian
University of California, Irvine
4199 Campus Dr, Suite 380
Irvine, CA 92697-2325

Subject: Bison Avenue Surface Parking Lot
SCH#: 2017061043

Dear Richard Demerjian:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on July 18, 2017, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2017061043
Project Title Bison Avenue Surface Parking Lot
Lead Agency University of California, Irvine

Type MND Mitigated Negative Declaration

Description The proposed project would construct an approx 330,000 gsf surface parking lot that would accommodate up to 1,100 spaces on the approx 7.6-acre site. The project scope includes vegetation clearing; grading; asphalt paving including two driveway connections to Health Sciences Drive; construction of pedestrian walkways; and installation of lighting to allow 24-hour use, drainage improvements, electric vehicle charging stations, landscaping, and irrigation. The proposed project would be constructed to allow for the future installation of an information booth and security access gate if deemed necessary at a later time.

Lead Agency Contact

Name Richard Demerjian
Agency University of California, Irvine
Phone (949) 824-7058 **Fax**
email
Address 4199 Campus Dr, Suite 380
City Irvine **State** CA **Zip** 92697-2325

Project Location

County Orange
City Irvine
Region
Lat / Long 33° 38' 26" N / 117° 51' 5" W
Cross Streets Bison Ave and California Ave
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways SR 73, I-405
Airports
Railways
Waterways San Diego Creek
Schools Tarbut V'Torah
Land Use UCI is not subject to local zoning regulations. Permitted uses in 2007 UCI LRDP allow parking facilities

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Project Issues Aesthetic/Visual; Air Quality; Archaeologic-Historic; Biological Resources; Cumulative Effects; Drainage/Absorption; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Growth Inducing; Landuse; Noise; Other Issues; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Septic System; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian

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Reviewing Agencies Resources Agency; Department of Fish and Wildlife, Region 5; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Caltrans, District 12; Regional Water Quality Control Board, Region 8; Air Resources Board, Transportation Projects; California Energy Commission; Native American Heritage Commission; Public Utilities Commission

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Date Received 06/19/2017 **Start of Review** 06/19/2017 **End of Review** 07/18/2017

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

clear 7/18/17 E

July 14, 2017

Mr. Richard Demerjian
University of California, Irvine
Office of Environmental Planning and Sustainability
4199 Campus Drive, Suite 380
Irvine, CA 92697-2325
rgdemerj@uci.edu

Governor's Office of Planning & Research
JUL 14 2017
STATE CLEARINGHOUSE

Subject: Comments on the Notice of Intent to Adopt a Mitigated Negative Declaration for the Bison Avenue Surface Parking Lot, Irvine, CA (SCH# 2017061043)

Dear Mr. Demerjian:

The California Department of Fish and Wildlife (Department) has reviewed the above-referenced Notice of Intent to Adopt a Mitigated Negative Declaration (MND) for the Bison Avenue Surface Parking Lot Project, dated March 2017. The following statements and comments have been prepared pursuant to the Department's authority as Trustee Agency with jurisdiction over natural resources affected by the project (California Environmental Quality Act [CEQA] Guidelines § 15386) and pursuant to our authority as a Responsible Agency under CEQA Guidelines section 15381 over those aspects of the proposed project that come under the purview of the California Endangered Species Act (CESA; Fish and Game Code § 2050 *et seq.*) and Fish and Game Code section 1600 *et seq.* The Department also administers the Natural Community Conservation Planning (NCCP) program. The University of California, Irvine (UCI) is a participating landowner under the Central/Coastal Orange County NCCP/Habitat Conservation Plan (HCP).

The 7.6-acre project site is located adjacent to Bison Avenue, California Avenue, and Health Sciences Drive on the UCI campus in the City of Irvine. Project activities include the development of a parking lot through vegetation clearing, grading, paving, and installation of lighting, landscaping, and irrigation. A moderately sized patch of coastal sage scrub exists in the western portion of the project site, and many-stemmed dudleya (*Dudleya multicaulis*) and southern tarplant (*Hemizonia parryi* ssp. *australis*) have potential to occur on site. Both plants are included on the Department's Special Plants list and are designated as Rare Plant Rank 1B by the California Native Plant Society.

While impacts to biological resources are stated to be discussed in Section 4.3 of the 2007 Long Range Development Plan Environmental Impact Report (LRDP EIR, SCH# 2006071024), and a project-specific Biological Constraints Analysis and Jurisdictional Delineation was prepared by LSA Associates for the project (MND, page 4.3-2), no additional biological analysis besides the Initial Study Checklist was provided with the current environmental document. Surveys described in the LRDP EIR took place in May and June of 2006.

The Department offers the following comments and recommendations to assist UCI in avoiding or minimizing potential project impacts on biological resources.

1. Because no project-specific biological analysis was provided with the MND beyond the Initial Study Checklist, the Department recommends that, in order to adequately review the significance of impacts to biological resources, such a report should be made available in the final MND as an appendix. This report should include the following:

    a. Up-to-date surveys showing plant and wildlife communities within the project area,

    b. a figure depicting their locations within the sphere of influence,

    c. a description of the survey methodology or protocol used for general plant and animal species, as well as sensitive or listed species. If there were variances from standard survey methodologies or protocols, please provide the background and rationale for the variances,

    d. a list of observed plant and animal species, including sensitive and listed species; we recommend that the California Natural Diversity Database (CNDDB) be queried in order to obtain historical records of sensitive plant species and wildlife within the sphere of influence,

    e. a list of appropriate mitigation measures to avoid, minimize, or mitigate for impacts to plant and animal species and their habitats,

    f. a description, including acreages, of the habitat types observed within the current project footprint including any off-site impacts and the permanent and temporary impacts to each of these habitat types, and

    g. a list of appropriate mitigation measures to avoid, minimize, or mitigate for those impacts, including acquisition and preservation in perpetuity for permanent and temporary impacts to upland habitats.

2. The MND states that, "[t]he two special status plant species are the many-stemmed dudleya and the southern tarplant. Both plants are included on the California Department of Fish and Wildlife (CDFW) Special Plants list and are designated as Rare Plant Rank 1B by the California Native Plant Society (CNPS); however, neither were observed during the surveys" (page 4.3-2).

    Surveys of the project area took place in 2006. Since that time, southern California habitats have experienced variable climatic conditions from extreme drought (2012-2017) to heavy rains (2017). After long periods of drought followed by rain, seasonal and focused survey results may differ from those conducted during dry periods, as seeds that have been dormant during drier periods may germinate. Based on these conditions and lack of additional information provided, it is unclear that the project would result in less than significant impacts to all sensitive biological resources, including sensitive plant species; therefore, the Department concludes that the given baseline is inappropriate to the procedural and substantive requirements of CEQA. In order to meet those requirements, the final MND should include site-specific surveys conducted at the appropriate times of year to actually detect species, and should not be done opportunistically. Seasonal variations in use by wildlife in the project area should be addressed. Recent, focused, species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, should be included in the impact analysis.

3. Additionally, the MND states that, "[b]iological resources issues are discussed in Section 4.3 of the 2007 LRDP EIR. A project-specific Biological Constraints Analysis and Jurisdictional Delineation was prepared by LSA" (page 4.3-2). Pursuant to CEQA Guidelines section 15150(c), Incorporation by Reference, the details of impacts to biological resources, survey dates and data, mitigation obligations, as well as how the proposed project is designed to be compliant with the NCCP/HCP, should be summarized in the final MND.

4. Mitigation measure BR-1 states that, "surveys for active nests shall be performed within 30 days prior to the commencement of any clearing or grading activities at locations within 500 feet of the approved limits of disturbance where suitable nesting habitat exists" (page 39). Preconstruction surveys 30 days prior to construction are insufficient to reduce potential impacts to nesting birds below significant, as birds would have ample time to nest in suitable habitat between the preconstruction survey and the commencement of construction activities. We recommend that BR-1 be amended into a more robust mitigation measure that incorporates the following language:

   In order to avoid impacts to nesting birds, project activities shall occur outside of the peak avian breeding season, which runs from February 1 through September 1. If project construction is necessary during the bird breeding season, a qualified biologist with experience in conducting bird breeding surveys shall conduct weekly bird surveys for nesting birds, within three days prior to the work in the area, and ensure no nesting birds in the project area would be impacted by the project. If an active nest is identified, a buffer shall be established between the construction activities and the nest so that nesting activities are not interrupted. The buffer shall be a minimum width of 300 feet (500 feet for raptors), be delineated by temporary fencing, and remain in effect as long as construction is occurring or until the nest is no longer active. No project construction shall occur within the fenced nest zone until the young have fledged, are no longer being fed by the parents, have left the nest, and will no longer be impacted by the project. Reductions in the nest buffer distance may be appropriate depending on the avian species involved, ambient levels of *human activity, screening vegetation, or possibly other factors.*

5. Mitigation measure BR-3 mentions that Best Management Practices (BMPs) would be implemented to prevent incidental discharges and/or fills in the event that construction starts prior to obtaining appropriate permits for work in jurisdictional riparian areas. In order for this measure to be sufficient to reduce impacts to Department jurisdictional areas to below significant, the BMPs should be specifically described in the final MND. An additional mitigation measure or measures may be appropriate.

6. The polyphagous shot-hole borer (PSHB) is an invasive ambrosia beetle that introduces fungi and other pathogens into host trees. The adult female tunnels galleries into the cambium of a wide variety of host trees, where it lays its eggs and propagates the *Fusarium* fungi species for the express purpose of feeding its young. These fungi cause *Fusarium* dieback disease, which interrupts the transport of water and nutrients in at least 43 reproductive host tree species, with impacts to other host tree species as well. With documented occurrences within UCI's urban forest and natural areas, the spread of PSHB could have further significant impacts in the local ecosystem. Therefore, we recommend the final MND include the following:

   a. a thorough discussion of the direct, indirect, and cumulative impacts that could occur from the potential spread of PSHB as a result of proposed activities in the final MND;

   b. an analysis of the likelihood of the spread of PSHB as a result of the invasive species' proximity to above referenced activities;

   c. figures that depict potentially sensitive or susceptible vegetation communities within the project area, the known occurrences of PSHB within the project area, and PSHB's proximity to above referenced activities; and

   d. a mitigation measure or measure(s) within the final MND that describe BMPs that bring impacts of the project on the spread of PSHB below a level of significance. Examples of such BMPs include:

      i. education of on-site workers regarding PSHB and its spread;
      ii. reporting sign of PSHB infestation, including sugary exudate ("weeping") on trunks or branches and PSHB entry/exit-holes (about the size of the tip of a ballpoint pen), to the Department and UCR's Eskalen Lab;
      iii. equipment disinfection;
      iv. pruning infected limbs in infested areas where project activities may occur;
      v. avoidance and minimization of transport of potential host tree materials;
      vi. chipping potential host materials to less than 1 inch and solarization, prior to delivering to a landfill;
      vii. chipping potential host materials to less than 1 inch, and solarization, prior to

composting on-site;

viii. solarization of cut logs; and/or

ix. burning of potential host tree materials.

Please refer to UCR's Eskalen lab website for more information regarding PSHBs: http://eskalenlab.ucr.edu/pshb.html.

We appreciate the opportunity to comment on the draft MND for this project and to assist UCI in further minimizing and mitigating project impacts to biological resources. The Department requests an opportunity to review and comment on any response that the UCI has to our comments and to receive notification of the forthcoming hearing date for the project (CEQA Guidelines; §15073(e)). If you have any questions or comments regarding this letter, please contact Jennifer Turner at (858-467-2717), or via email at jennifer.turner@wildlife.ca.gov.

Sincerely,

Gail K. Sevrens
Environmental Program Manager

ec: Christine Medak (U.S. Fish and Wildlife Service)
Scott Morgan (State Clearinghouse)
Lindsey Hashimoto (University of California, Irvine) hashimol@uci.edu

Response to the State Clearinghouse

Comment 1: This is a duplicate of the California Department of Fish and Wildlife comment letter. Please see responses above.

APPENDIX I

Mitigation Monitoring and Reporting Program

	Mitigation Measure	Responsible Party	Monitoring and Reporting Procedure
Aes-2B	Prior to approval of construction documents for future projects that implement the 2007 LRDP, UCI shall approve an exterior lighting plan for each project. In accordance with UCI's Campus Standards and Design Criteria for outdoor lighting, the plan shall include, but not be limited to, the following design features: • Full-cutoff lighting fixtures to direct lighting to the specific location intended for illumination (e.g., roads, walkways, or recreation fields) and to minimize stray light spillover into adjacent residential areas, sensitive biological habitat, and other light-sensitive receptors; • Appropriate intensity of lighting to provide campus safety and security while minimizing light pollution and energy consumption; and • Shielding direct lighting within parking areas, parking structures, or roadways away from adjacent residential areas, sensitive biological habitat, and other light-sensitive receptors through site configuration, grading, lighting design, or barriers such as earthen berms, walls, or landscaping.	FM/EPS	FM to review during design EPS to confirm
AQ-1	**AQ-1:** Prior to initiating 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 BMPs: • 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	FM/EPS	FM to confirm and monitor contractor EPS to confirm

Mitigation Measure		Responsible Party	Monitoring and Reporting Procedure
	construction supervisor. • 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. • Disturbed areas designated for landscaping shall be prepared as soon as possible after completion of construction activities. • 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. • 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. • 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. • 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. • Speed limit signs at 15 mph or less shall be installed on all unpaved roads within construction sites. • Where visible soil material is tracked onto adjacent public paved roads,		

Mitigation Measure		Responsible Party	Monitoring and Reporting Procedure
	the paved roads shall be swept and debris shall be returned to the construction site or transported off site for disposal. • 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. • 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. • Heavy duty diesel trucks and gasoline powered equipment shall be turned off if idling is anticipated to last for more than 5 minutes. • Where feasible, the construction contractor shall use alternatively fueled construction equipment, such as electric or natural gas-powered equipment or biofuel. • Heavy construction equipment shall use low NOx diesel fuel to the extent that it is readily available at the time of construction. • To the extent feasible, construction activities shall rely on the campus's existing electricity infrastructure rather than electrical generators powered by internal combustion engines. • 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. • Where possible, the construction contractor shall provide a lunch		

	Mitigation Measure	Responsible Party	Monitoring and Reporting Procedure
	shuttle or on-site lunch service for construction workers. • 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.		
BR-1	If project construction is necessary during the bird breeding season (February 1 through August 31), a qualified biologist with experience in conducting bird breeding surveys shall conduct weekly bird surveys for nesting birds, within three days prior to the work in the area, and ensure no nesting birds in the project area would be impacted by the project. If an active nest is identified, a buffer shall be established between the construction activities and the nest so that nesting activities are not interrupted. The buffer shall be a minimum width of 300 feet (500 feet for raptors), be delineated by temporary fencing, and remain in effect as long as construction is occurring or until the nest is no longer active. No project construction shall occur within the fenced nest zone until the young have fledged, are no longer being fed by the parents, have left the nest, and will no longer be impacted by the project. Reductions in the nest buffer distance may be appropriate depending on the avian species involved, ambient levels of human activity, screening vegetation, or possibly other factors.	FM/EPS	FM to coordinate surveys and incorporate into construction documents EPS to confirm
BR-2	In accordance with Sections 404 and 401 of the Clean Water Act and Section 1602 of the California Fish and Game Code, appropriate permits shall be obtained through the Army Corps of Engineers, California Department of Fish and Wildlife, and Regional Water Quality Control Board. A mitigation	EPS	EPS to obtain permits and implement off-site mitigation

	Mitigation Measure	Responsible Party	Monitoring and Reporting Procedure
	replacement program shall be implemented off-site on the UCI campus.		
BR-3	In the event that construction starts prior to obtaining permits in compliance with Sections 404 and 401 of the Clean Water Act and Section 1602 of the California Fish and Game Code, all potentially jurisdictional areas shall be flagged and fenced off. Construction personnel, equipment, and materials shall not enter, be stored, or remain in these areas until permit approval. Standard BMPs shall be implemented to prevent incidental discharges and/or fills (see mitigation measure Hyd-2A).	FM/EPS	FM to monitor contractor EPS to confirm
Cul-1C	Prior to land clearing, grading, or similar land development activities for future projects that implement the 2007 LRDP in areas of identified archaeological sensitivity, UCI shall retain a qualified archaeologist (and, if necessary, a culturally affiliated Native American) to monitor these activities. In the event of an unexpected archaeological discovery during grading, the on-site construction supervisor shall redirect work away from the location of the archaeological find. A qualified archaeologist shall oversee the evaluation and recovery of archaeological resources, in accordance with the procedures listed below, after which the on-site construction supervisor shall be notified and shall direct work to continue in the location of the archaeological find. A record of monitoring activity shall be submitted to UCI each month and at the end of monitoring. If an archaeological discovery is determined to be significant, the archaeologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures: a. Perform appropriate technical analyses; b. File an resulting reports with South Coast Information Center; and c. Provide the recovered materials to an appropriate repository for curation, in consultation with a culturally-affiliated Native American.	FM/EPS	On-site construction supervisor to notify FM and EPS who will stop/direct work Submit final report to EPS

	Mitigation Measure	Responsible Party	Monitoring and Reporting Procedure
Cul-4A	Prior to grading or excavation for future project that implement the 2007 LRDP and would excavate sedimentary rock material other than topsoil, UCI shall retain a qualified paleontology to monitor these activities. In the event fossils are discovered during grading, the on-site construction supervisor shall be notified and shall redirect work away from the location of the discovery. The recommendations of the paleontologist shall be implemented with respect to the evaluation and recovery of fossils, in accordance with mitigation measures Cul-4B and Cul-4C, after which the on-site construction supervisor shall be notified and shall direct work to continue in the location of the fossil discovery. A record of monitoring activity shall be submitted to UCI each month and ay the end of monitoring.	FM/EPS	On-site construction supervisor to notify FM and EPS who will stop/direct work Submit final report to EPS
Cul-4B	If the fossils are determined to be significant, then mitigation measure Cul-4C shall be implemented.	FM/EPS	Submit documentation to EPS to report procedures were followed
Cul-4C	For significant fossils as determined by mitigation measure Cul-4B, the paleontologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures: a. The paleontologist shall ensure that all significant fossils collected are cleaned, identified, catalogued, and permanently curated with an appropriate institution with a research interest in the materials (which may include UCI); b. The paleontologist shall ensure that specialty studies are completed, as appropriate, for any significant fossil collected; and c. The paleontologist shall ensure that curation of fossils are completed in consultation with UCI. A letter of acceptance from the curation	FM/EPS	Submit documentation to EPS to report procedures were followed and an attempt to house found fossils occurred

	Mitigation Measure	Responsible Party	Monitoring and Reporting Procedure
	institution shall be submitted to UCI.		
Haz-6A	Prior to initiating on-site construction for future projects that implement the 2007 LRDP and would involve a land or roadway closure, the construction contractor and/or UCI Design and Construction Services shall notify the UCI Fire Marshal. If determined necessary by the UCI Fire Marshal, local emergency services shall be notified of the lane or roadway closure by the Fire Marshal.	FM/EPS	FM to record notification to the Fire Marshall EPS to confirm
Hyd-1A	As early as possible in the planning process of future projects that implement the 2007 LRDP and would result in land disturbance of 1 acre or greater, and for all development projects occurring on the North Campus in the watershed of the San Joaquin Freshwater Marsh, a qualified engineer shall complete a drainage study. Design features and other recommendations from the drainage study shall be incorporated into project development plans and construction documents. Design features shall be consistent with UCI's Storm Water Management Program, shall be operational at the time of project occupancy, and shall be maintained by UCI. At a minimum, all drainage studies required by this mitigation measure shall include, but not be limited to, the following design features: Site design that controls runoff discharge volumes and durations shall be utilized, 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. Measures that control runoff discharge volumes and durations shall be utilized, where applicable and feasible, on manufactured slopes and newly-graded drainage channels, such as energy dissipaters, revegetation (e.g.,	FM/EPS	FM to incorporate findings into project design EPS to confirm

	Mitigation Measure	Responsible Party	Monitoring and Reporting Procedure
	hydroseeding and/or plantings), and slope/channel stabilizers.		
Hyd-2A	Prior to initiating on-site construction for future projects that implement the 2007 LRDP, UCI shall approve an erosion control plan for project construction. The plan shall include, but not be limited to, the following applicable measures to protect downstream areas from sediment and other pollutants during site grading and construction: • Proper storage, use, and disposal of construction materials. • Removal of sediment from surface runoff before it leaves the site through the use of silt fences, gravel bags, fiber rolls or other similar measures around the site perimeter. • Protection of storm drain inlets on-site or downstream of the construction site through the use of gravel bags, fiber rolls, filtration inserts, or other similar measures. • Stabilization of cleared or graded slopes through the use of plastic sheeting, geotextile fabric, jute matting, tackifiers, hydro-mulching, revegetation (e.g., hydroseeding and/or plantings), or other similar measures. • Protection or stabilization of stockpiled soils through the use of tarping, plastic sheeting, tackifiers, or other similar measures. • Prevention of sediment tracked or otherwise transported onto adjacent roadways through use of gravel strips or wash facilities at exit areas (or equivalent measures). • Removal of sediment tracked or otherwise transported onto adjacent	FM/EPS	FM to prepare erosion control plan and incorporate into construction documents EPS to confirm

	Mitigation Measure	Responsible Party	Monitoring and Reporting Procedure
	roadways through periodic street sweeping. • Maintenance of the above-listed sediment control, storm drain inlet protection, slope/stockpile stabilization measures.		
Hyd-2B	Prior to project design approval for future projects that implement the 2007 LRDP and would result in land disturbance of 1 acre or more, the UCI shall ensure that the projects include the design features listed below, or their equivalent, in addition to those listed in mitigation measure Hyd-1A. Equivalent design features may be applied consistent with applicable MS4 permits (UCI's Storm Water Management Plan) at that time. All applicable design features shall be incorporated into project development plans and construction documents; shall be operational at the time of project occupancy; and shall be maintained by UCI. • All new storm drain inlets and catch basins within the project site shall be marked with prohibitive language and/or graphical icons to discourage illegal dumping per UCI standards. • Outdoor areas for storage of materials that may contribute pollutants to the storm water conveyance system shall be covered and protected by secondary containment. • Permanent trash container areas shall be enclosed to prevent off-site transport of trash, or drainage from open trash container areas shall be directed to the sanitary sewer system. • At least one treatment control is required for new parking areas or structures, or for any other new uses identified by UCI as having the potential to generate substantial pollutants. Treatment controls include, but are not limited to, detention basins, infiltration basins, wet	FM/EPS	FM to incorporate into construction documents EPS to confirm

	Mitigation Measure	Responsible Party	Monitoring and Reporting Procedure
	ponds or wetlands, bio-swales, filtration devices/inserts at storm drain inlets, hydrodynamic separator systems, increased use of street sweepers, pervious pavement, native California plants and vegetation to minimize water usage, and climate controlled irrigation systems to minimize overflow. Treatment controls shall incorporate volumetric or flow-based design standards to mitigate (infiltrate, filter, or treat) storm water runoff, as appropriate.		
Noi-2A	Prior to initiating on-site construction for future projects that implement the 2007 LRDP, UCI shall approve contractor specifications that include measures to reduce construction/demolition noise to the maximum extent feasible. These measures shall include, but are not limited to, the following: • 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. • 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. • 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.	FM/EPS	FM to confirm with contractor and incorporate into construction documents EPS to confirm

	Mitigation Measure	Responsible Party	Monitoring and Reporting Procedure
	• Construction equipment shall be properly outfitted and maintained with manufacturer recommended noise-reduction devices to minimize construction-generated noise. • 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. • 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. • 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. • 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.		