FINAL

INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

for

East Campus Infrastructure Improvements Phase 2

(UCR PROJECT NO. 950463)

Prepared by:

University of California, Riverside

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JN 10-106183

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University of California, Riverside
Project No. 940463
Environmental Checklist Form – Draft Initial Study
June 1, 2009

PROJECT INFORMATION

1. Project Title:

East Campus Infrastructure Improvements Phase 2

2. Lead Agency Name and Address:

The Regents of the University of California
1111 Franklin Street
Oakland, CA 94607

3. Contact Person and Phone Number:

Tricia D. Thrasher, ASLA
Principal Environmental Project Manager
University of California, Riverside
Office of Design and Construction
3615-A Canyon Crest Drive
Riverside, CA 92507
951.827.1484

4. Project Location:

In the northeastern portion of the City of Riverside, on the campus of the University of California, Riverside.

5. Project Sponsor's Name and Address:

University of California, Riverside
Office of Design and Construction
3615-A Canyon Crest Drive
Riverside, CA 92507

6. General Plan Designation and Zoning:

Refer to Section 5.0, *Relationship to the 2005 Long Range Development Plan*, for a discussion of the Project's consistency with the 2005 Long Range Development Plan.

7. Description of Project:

Refer to Section 4.0, *Project Description*.

8. Surrounding land uses and environmental setting [briefly describe the Project's surroundings]:

Refer to Section 4.1, *Project Location and Setting*.

9. Discretionary approval authority and other public agencies whose approval is required [e.g., permits, financing approval, or participation agreement]:

Project approval authority resides within the University of California Executive Vice President pursuant to authority delegate from The Board of Regents.

10. Custodian of the Administrative Record for this Project (if different from response to Item No. 3):

Refer to Item No. 3.

11. Identification of Previous EIRs Relied Upon for Tiering Purposes (including the applicable Master Plan (i.e., Long Range Development Plan) and project EIRs) and address where a copy is available for inspection):

The documents relied upon for tiering purposes are:

- 2005 University of California, Riverside, Long Range Development Plan; and
- 2005 University of California, Riverside, Long Range Development Plan Final Environmental Impact Report (SCH No. 2005041164).

These documents are available for inspection at the location noted in Item No. 2 or accessed on-line at www.lrdp.ucr.edu.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this Project as indicated by the checklist on the following pages.

[ ]	Aesthetics	[ ]	Agriculture Resources	[ ]	Air Quality
[ ]	Biological Resources	[ ]	Cultural Resources	[x]	Geology/Soils
[ ]	Hazards & Hazardous Materials	[ ]	Hydrology/Water Quality	[ ]	Land Use/Planning
[ ]	Mineral Resources	[ ]	Noise	[ ]	Population/Housing
[ ]	Public Services	[ ]	Recreation	[x]	Transportation/Traffic
[ ]	Utilities/Service Systems	[ ]	Mandatory Findings of Significance		

1.0 INTRODUCTION

In order to support the utility demands of existing and future buildings through 2011-2012, the University of California, Riverside (UCR) proposes to improve the capacity and distribution capability of the existing campus utilities network by implementation of the East Campus Infrastructure Improvements (Phase 2). More specifically, the East Campus Infrastructure Improvements Phase 2 (Project) would address the next series of critical utility requirements by: improving existing 12kV (Kilovolt) electrical services; increasing heating capacity to the East Campus; enhancing chilled water capacity; and extending utility distribution service (i.e., potable/domestic water, steam, chilled water, sanitary sewer, and 12kV electrical systems) north of North Campus Drive.

2.0 ENVIRONMENTAL REVIEW AND APPROVAL

2.1 CONTEXT OF REVIEW

UCR's 2005 Long Range Development Plan (LRDP) and accompanying 2005 Long Range Development Plan Environmental Impact Report (2005 LRDP EIR) (State Clearing House # 2005041164), the two guiding documents for the physical growth of the campus, were approved and certified by the Board of Regents at their November 17, 2005 meeting. The environmental analysis for the proposed Project is tiered from the 2005 LRDP EIR in accordance with Sections 15152 and 15168 of the California Environmental Quality Act Guidelines (*CEQA Guidelines*) and Public Resources Code Section 21094. The 2005 LRDP EIR is a Program EIR, prepared pursuant to Section 15168 of the *CEQA Guidelines* (Title 14, California Code of Regulations [CCR], Sections 15000 et seq.). The 2005 LRDP EIR analyzed the full implementation of uses and physical development proposed under the 2005 LRDP through the year 2015/16 and a student population of 25,000, and identified measures to mitigate the significant adverse project and cumulative impacts associated with the growth.

The CEQA concept of "tiering" refers to the coverage of general environmental matters in broad programmatic level EIRs, with subsequent focused environmental documents for individual projects that implement the program. This environmental document incorporates by reference the discussions in the 2005 LRDP EIR (the Program EIR) and concentrates on project-specific issues. CEQA and the *CEQA Guidelines* encourage the use of tiered environmental documents to reduce delays and excessive paperwork in the environmental review process. This is accomplished in tiered documents by eliminating repetitive analysis of issues that were adequately addressed in the Program EIR Section 15168(d) of the *CEQA Guidelines* provides for simplifying the task of preparing environmental documents on later parts of the program by incorporating reference factors that apply to the program as a whole. Where an EIR has been prepared or certified for a program or plan, the environmental review for a later activity consistent with the program or plan should be limited to effects that were not analyzed as significant in the prior EIR or that are susceptible to substantial reduction or avoidance (CEQA Guidelines Section 15152[d]).

Accordingly, the tiering of environmental analysis for the proposed Project allows this Initial Study to rely on the 2005 LRDP EIR for the following:

- Discussion of general background and setting information for environmental topic areas;
- Overall growth related issues;
- Issues that were evaluated in sufficient detail in the 2005 LRDP EIR for which there is no significant new information or change in circumstances that would require further analysis; and
- Long term cumulative impacts assessment.

The purpose of this tiered Initial Study is to: (1) assess site-specific impacts of the Project, (2) verify incorporation of applicable program-level Campus PSs, PPs, and MMs adopted in the LRDP EIR, and (3) evaluate any changes in Project definition, location, or setting from that assumed in the LRDP EIR. As shown in the *Determination* form in Section 7.0, and based on

the analysis contained in this Tiered Initial Study, it has been determined that the proposed Project would not result in any potentially significant impacts that cannot be mitigated to less than significant levels or are not sufficiently addressed by the 2005 LRDP EIR. The existing campus PSs, PPs, and MMs identified in the 2005 LRDP EIR and adopted by the University that apply to the proposed Project are incorporated as part of the Project description. The Project would not result in any new potentially significant impacts. Therefore, preparation of a Mitigated Negative Declaration is appropriate (the proposed Mitigated Negative Declaration is presented in Appendix 11.2).

Based on the analysis in this Tiered Initial Study, the proposed Project does not involve new or more significant impacts than those analyzed in the 2005 LRDP EIR and none of the conditions described in CEQA or the *CEQA Guidelines* calling for preparation of a subsequent or supplemental EIR have occurred.

2.2 PUBLIC AGENCY REVIEW

In accordance with CEQA, this Initial Study was circulated for review and comment by the public and other interested parties, agencies, and organizations for a 30-day review period. This comment period began on April 1, 2009 and end on April 30, 2009.

Copies of this document, the 2005 LRDP, and the 2005 LRDP EIR are available for review at the following locations:

- Rivera Library, University of California, Riverside;
- Office of Design and Construction, University of California, Riverside, 3615 Canyon Crest Drive, Riverside, California; and
- The UCR website at: http//pdc.ucr.edu

Written comments on the Draft Initial Study were received through April 30, 2009 (5:00 PM) and were addressed to:

Tricia Thrasher, ASLA
Principal Environmental Project Manager
University of California, Riverside
Office of Design and Construction
3615-A Canyon Crest Drive
Riverside, CA 92521-0322

As a public agency principally responsible for approving and carrying out the proposed Project, the University of California is the Lead Agency under CEQA. This Initial Study incorporating potential revisions and responses to public comments will be issued by the University of California, as the Lead Agency for this Project, to inform the Board of Regents of the University of California and its delegates (the University) of the potential environmental effects of the Project.

3.0 BACKGROUND AND CURRENT UTILITIES ISSUES

3.1 BACKGROUND

The UCR Campus' academic core was established in the 1960's, in the area east of Interstate 215/State Route 60 (i.e., East Campus). Most of the Campus' core infrastructure was designed and implemented during this time, thus, is between 30 and 40 years old and in poor condition. The existing utility network includes components for cooling, heating, electricity, potable water, natural gas, and sanitary sewer line to serve the East Campus.

As indicated in the LRDP, enrollment growth at the UCR Campus has been significant during the last eight years, placing increased demand on all aspects of the existing network. Further, continued growth is expected through the LRDP planning horizon year of 2015. To support the instructional and research needs of the Campus, new buildings and the corresponding utility infrastructure are needed.

The East Campus Infrastructure Improvements Phase 1 Project provided the first increment of utility enhancements, including partial upgrades and extensions for chilled water, sewer, domestic water, steam, and electrical services. The proposed Phase 2 Project (i.e., East Campus Infrastructure Improvements Phase 2) would continue the improvements begun in Phase I to support current and projected enrollment and program growth. Since 2005, several new instructional and research buildings (Physical Sciences Building and Engineering Building Unit 2, Biological Sciences Buildings, and College of Humanities and Social Science Instructional and Research Facility) opened on the East Campus, adding approximately 460,000 gross square feet (GSF) of space to the campus. Currently, there are five new buildings under construction (Student Commons Expansion, Genomics Building, Psychology Building, Student Academic Support Services, and Material Sciences and Engineering Building) with several additional buildings in planning stages. Not including the Student Commons Expansion and the Student Academic Support Services building, three of these new buildings would provide approximately 299,000 GSF of primarily instructional and research space for the campus by 2009-10. The capacity and distribution capability of the existing campus utilities network would be improved by the Phase 2 Project to support the utility demands of these buildings and future buildings through 2011-12.

3.2 CURRENT UTILITIES ISSUES

DEFICIENT HEATING

Campus heating needs are currently provided by four boilers that were installed at the Steam Plant/Central Utility Plant between 1958 and 1965 (three at 30,000 pounds-per hour and one at 40,000 pounds-per-hour). Although rated for a total of 130,000 pounds-per-hour, the actual combined capacity of the four existing boilers is limited by the feed-water system for a total system output of 100,000 pounds-per-hour. Under stable operating conditions, this system capacity would be sufficient to meet the demand of the campus through at least 2012-13. However, these boilers are in poor condition, subject to failure, and will not comply with the South Coast Air Quality Management District's (SCAQMD) changes to environmental emissions

regulations, which will be phased in over the next two years. Specifically, SCAQMD Rule 1146 will require NO_x limits of 9 parts per million (ppm) and eventually as low as 6 ppm. The emissions from the existing boilers will in the future exceed these future requirements.

The existing 40,000 pound-per-hour boiler (Boiler #4) can meet much of the current average heating demand of the campus. Therefore, to meet the first AQMD target date for implementing changes to Rule 1146, Boiler #4 has been refurbished, in order to reduce its emissions to within the acceptable levels and is performing better than was projected in this regard. To meet demand during peak periods, one to two of the existing smaller boilers would be run to supplement the capacity of the upgraded Boiler #4. The smaller boilers will be refurbished or replaced in the future in order to satisfy Rule 1146.

DEFICIENT COOLING CAPACITY

The Campus relies on chilled water supplied from chillers at the Steam Plant/Central Utility Plant), Satellite Chiller Plant, and two thermal energy storage (TES) tanks. The chilled water is used for general air-conditioning, environmental conditioning of research material and instrumentation, and computer cooling. The chillers and TES tanks function in tandem as part of an energy cost reduction program. The chillers operate only during off-peak hours to provide chilled water to the campus and to cool the TES tank water, and the tank thermal capacity is then discharged during the daytime on-peak period to cool the buildings. By limiting the use of the electric chillers to off-peak hours, the campus and the City of Riverside Public Utilities Department negotiated an electrical utility rate beneficial for both parties.

The total system capacity currently available from running the chillers only at night is approximately 8,400 tons-per-hour. Peak demand is projected to exceed this capacity by 2008-09**.** At that time, the Campus will require operation of the existing chillers more frequently during peak hours, ultimately exceeding the current agreement negotiated with the City.

HIGH VOLTAGE ELECTRICAL DISTRIBUTION

Sufficient electrical capacity exists within the campus high voltage network to support campus growth through 2016. The distribution system, however, is problematic as the campus is running on two systems: an old and unreliable 5kV system, and a modern and efficient 12kV system.

A 5kV system was originally used to distribute high voltage electricity to the campus. Over the years, this system has become obsolete and inefficient. During the last 20 years, there has been a significant increase in the use of electronic equipment, primarily personal computers. In addition, the campus population growth of the last five years has increased occupancy loads throughout existing buildings. These demand factors and system obsolescence have caused low voltage problems in many of the campus buildings currently on the 5kV power grid.

As the needs of the campus began to exceed the ability of the 5kV system, it was determined that investment of funds in the old system was not cost-effective. The campus constructed a 12kV system to support new buildings, and has been implementing system improvements to transfer existing buildings from the deficient 5kV system to the more reliable 12kV power supply. Eventually, the 5kV system will be phased out entirely, providing better distribution of capacity between established and developing areas of the East Campus.

EXTEND INFRASTRUCTURE NORTH OF NORTH CAMPUS DRIVE

In response to planned enrollment increases and program growth, UCR plans to develop an area immediately north of North Campus Drive currently used for athletic fields and the site of the new Materials Science & Engineering (MS&E) Building to support additional new academic buildings. The infrastructure required to support future buildings in this area, including chilled water, steam, domestic and potable water, sanitary sewer, gas, communications/fire safety, and 12kV electrical, does not currently exist north of North Campus Drive.

4.0 PROJECT DESCRIPTION

4.1 PROJECT LOCATION AND SETTING

The Project site is located in the northeastern portion of the City of Riverside on the campus of the University of California, Riverside (UCR); refer to Exhibit 1, *Regional Context*. The City of Riverside is located in western Riverside County, approximately 20 miles east of Los Angeles. Regional access to the 1,112-acre Campus is provided via Interstate 215/State Route 60, which bisects the Campus in a north-east orientation; refer to Exhibit 2, *Local Setting*. The Project involves various sites in UCR's East Campus, which is located east of Interstate 215/State Route 60 (I-215/SR60), as well as one site in the West Campus, which is located west of I-215/SR60; refer to Exhibit 3, *UCR Campus Map*. The sites consist primarily of roadways and athletic fields.

4.2 PROJECT CHARACTERISTICS

The proposed East Campus Infrastructure Phase 2 Project (Project) would address a series of critical utility requirements by:

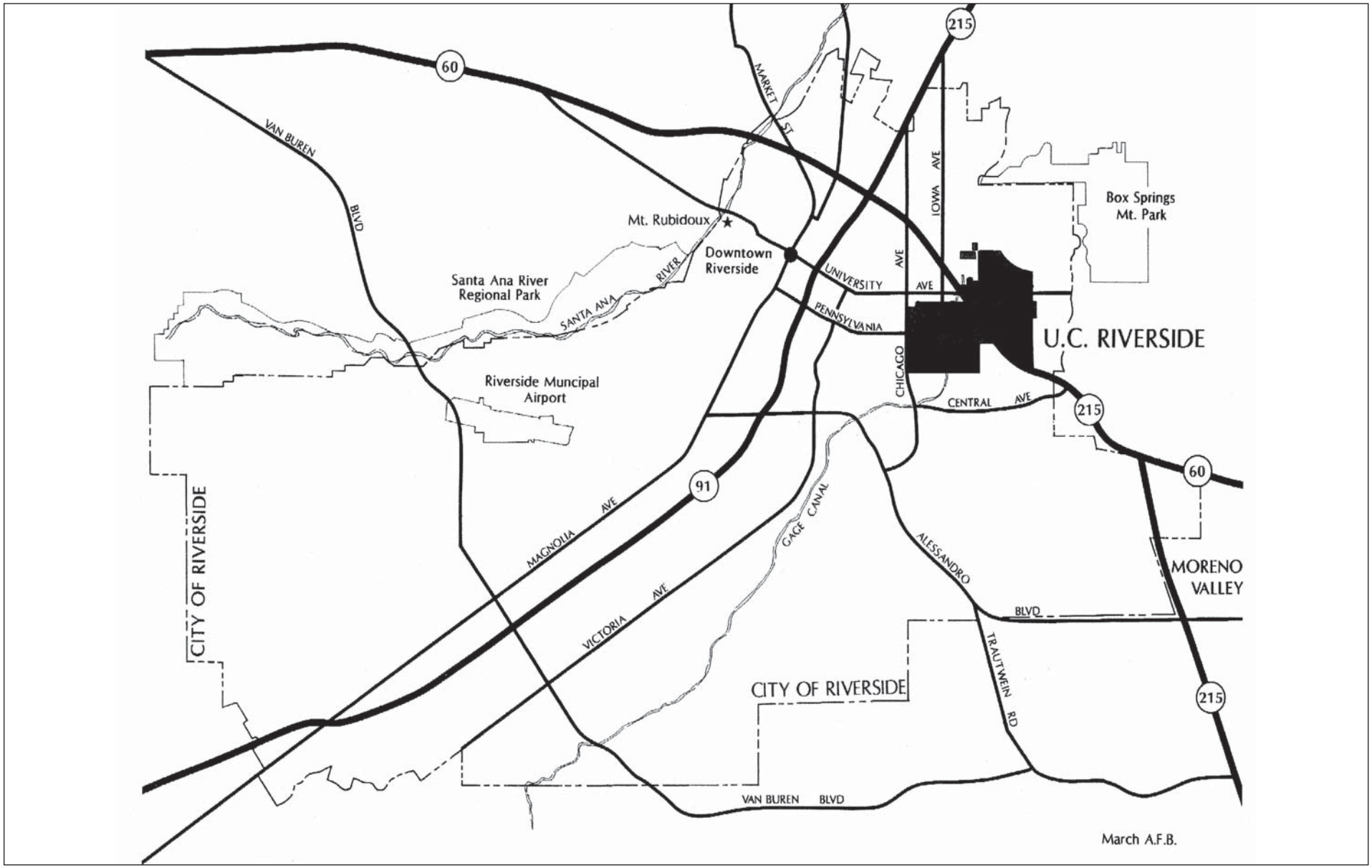
- Improving existing 12kV electrical services to support short- and long-term building growth and providing reliable and increased capacity to four existing buildings.

- Increasing heating capacity to the East Campus by installing one 50,000 pound per hour boiler (i.e., Boiler #5) and two 100,000-pound per hour deaerators.

- Enhancing chilled water capacity by installing a 2,000-ton chiller and an additional 2.7-million gallon Thermal Energy Storage (TES) Tank (i.e., TES Tank #3).

- Extending utility distribution service to a currently undeveloped area north of North Campus Drive, including potable and domestic water, steam, chilled water, sanitary sewer, and 12kV electrical systems.

The proposed infrastructure improvements are summarized in Table PD-1, *Description of Proposed Infrastructure Improvements*. Exhibit 4, *Site Plan*, illustrates the locations of the various infrastructure improvements, according to the "Item Number" identified in Table PD-1. The preliminary sketches of each improvement are available for review at the UCR Office of Design and Construction. The infrastructure upgrades described below reflect the most critical utility needs based on preliminary engineering analysis.



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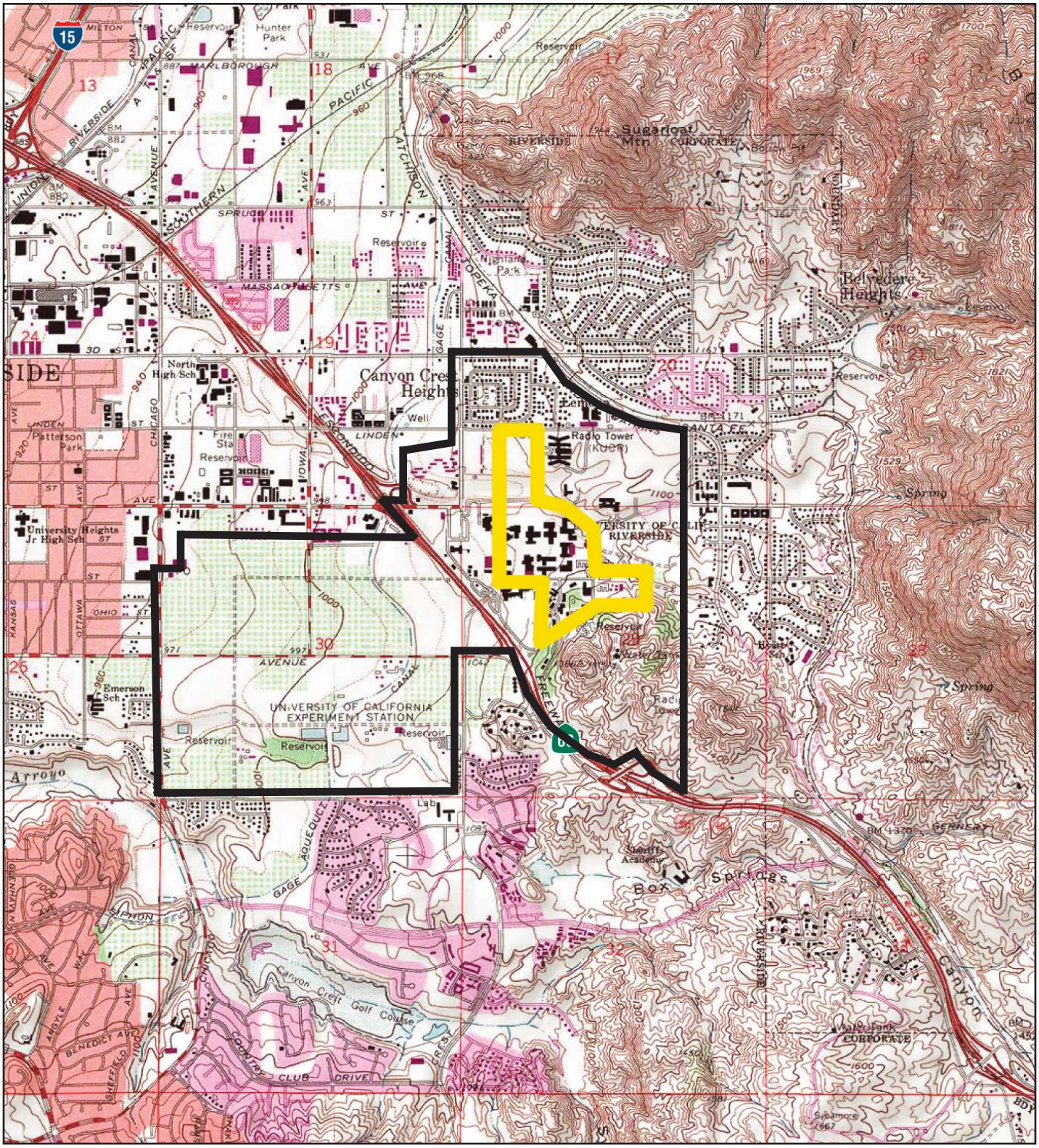
INITIAL STUDY/MITIGATED NEGATIVE DECLARATION
UCR • EAST CAMPUS INFRASTRUCTURE IMPROVEMENTS PHASE 2

Regional Context

Exhibit 1



Source: USGS Riverside East, CA, 1980.

- UC Riverside Campus Boundaries
- Project Area Boundary

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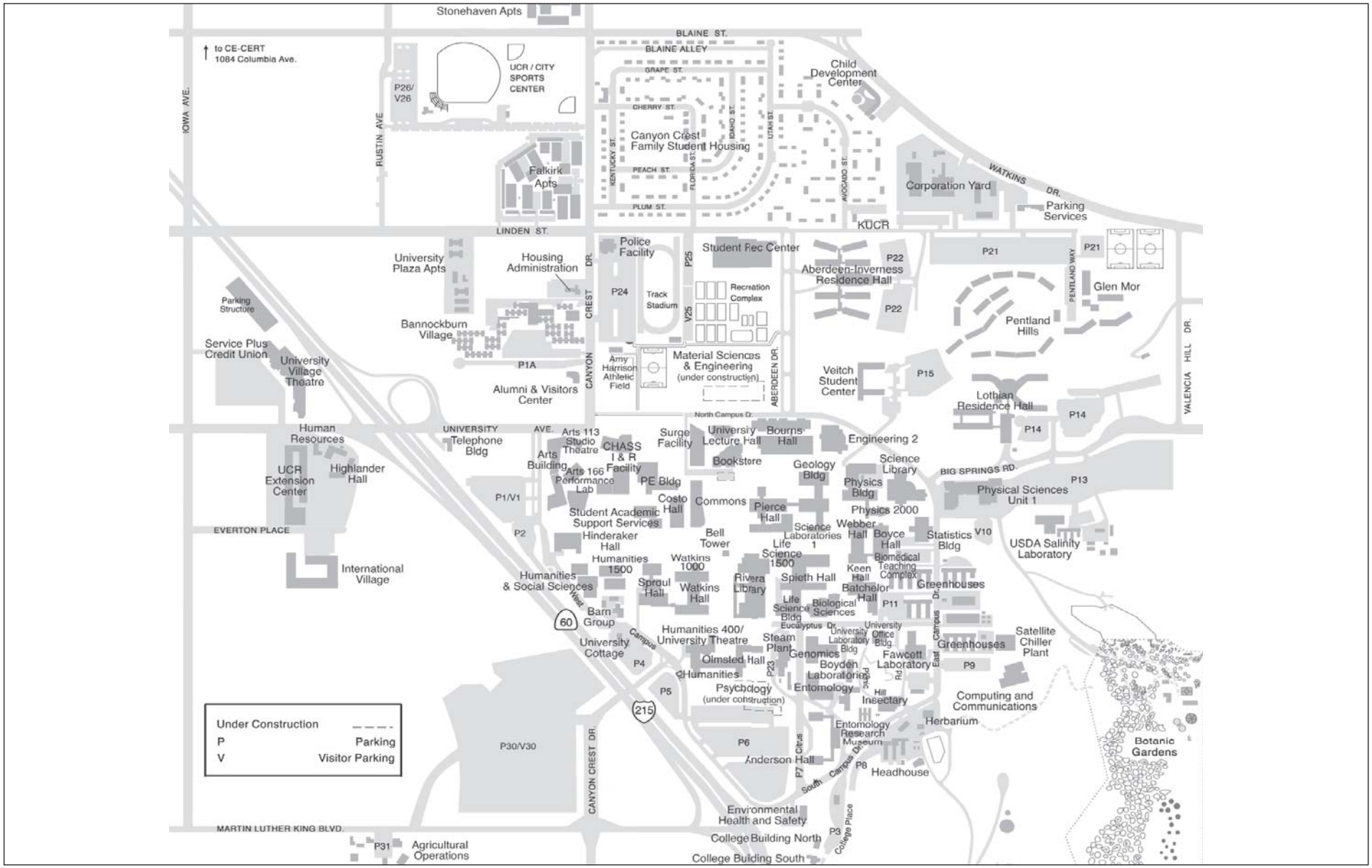
UCR • EAST CAMPUS INFRASTRUCTURE IMPROVEMENTS PHASE 2

Local Setting

Exhibit 2



Source: University of California, Riverside, 2008-2009 Campus Map.

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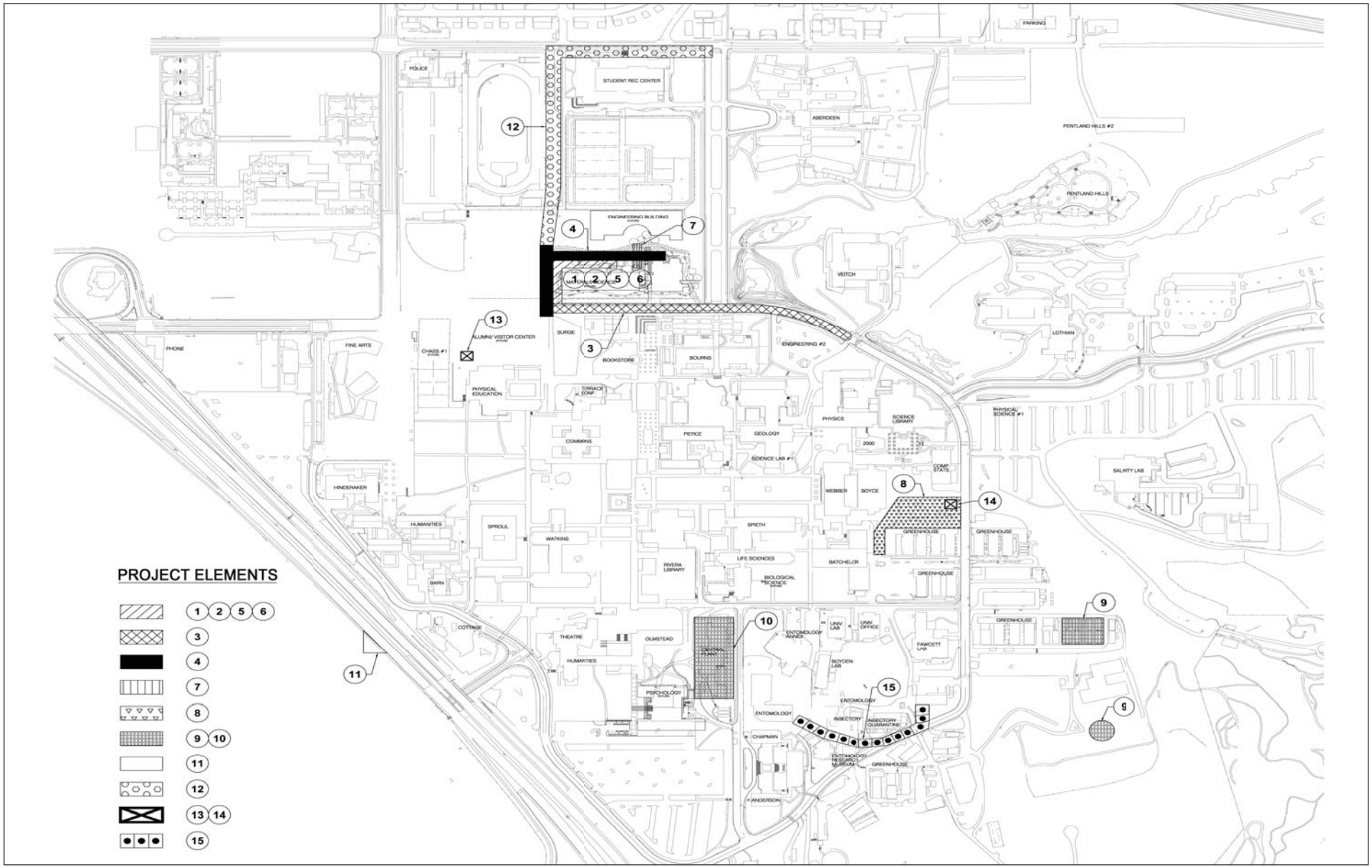
UCR • EAST CAMPUS INFRASTRUCTURE IMPROVEMENTS PHASE 2

UCR Campus Map

Exhibit 3



Source: Tmad Taylor & Gaines; April 30, 2008.

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INITIAL STUDY/MITIGATED NEGATIVE DECLARATION
UCR • EAST CAMPUS INFRASTRUCTURE IMPROVEMENTS PHASE 2

Site Plan

Exhibit 4

Table PD-1
Description of Proposed Infrastructure Improvements

Item No.	Campus Location	Project Description
Chilled Water Supply and Distribution System		
1	North Campus Engineering Complex[1]	Extend chilled water supply and return from manhole, located 300 feet east of Canyon Crest on North Campus Drive, north approximately 275 feet to new manhole. Extend piping east 250 feet to second manhole and stub out for new buildings.
9	Satellite Chiller Plant	Install one 2,000-ton chiller with two pumps within the existing building, two cell-cooling towers within the Plant perimeter, and one 2.7-million gallon TES Tank (i.e., TES Tank #3) with one TES pump and one condenser water pump (within a small building) south of the Computing and Communications Building and west of existing TES Tank #2.
Steam Supply and Condensate Return Systems		
2	North Campus Engineering Complex[1]	Extend steam and condensate return from manhole, located approximately 300 feet east of Canyon Crest on North Campus Drive, north to new manhole in center of Engineering courtyard. Stub out for new buildings.
10	Steam Plant/ Central Utility Plant Building	Install one 50,000 pound per hour (lb/hr) boiler (i.e. Boiler #5) with economizer and low nitrogen oxides (NO_x) burner adjacent to existing Boiler #4 within the building. Ammonia injection methods would be utilized to bring NO_x levels down to current standard limits. Replace two existing deaerators with two new deaerators rated at 100,000 lb/hr each. Cross-connect deaerators for redundancy. Upgrade feed water pumps to meet requirements of new Boiler #5.
Domestic Water System		
3	North Campus Drive	Provide new 12-inch domestic water line connecting to the existing 12-inch water line approximately 300 feet east of the intersection of Canyon Crest Road and North Campus Drive. The 12-inch line to extend easterly approximately 1,300 feet and connect to the existing eight-inch capped water line on East Campus Drive. At the intersection of Campus Drive North and Aberdeen, provide a six-inch branch service off the 12-inch main north to a shut-off valve and fire hydrant at the corner.
Sanitary Sewer System		
4	North Campus Engineering Complex[1]	Install new eight-inch sewer line from the existing D3 manhole located on North Campus Drive and run north 275 feet to new manhole. Extend piping east 250 feet to new manhole. Extend piping east 250 feet to second manhole and stub out for new buildings. Additional manhole required north of North Campus Drive and East-West Storm Drain to facilitate installation of new sewer line.
Electrical Supply Distribution System		
6	North Campus Engineering Complex[1]	Extend two existing 12V circuits in underground ductbank from Vault 4G north approximately 275 feet to a new vault then east approximately 250 feet to another new vault. This extension would serve the North Campus expansion area.
7	North Campus Engineering Complex[1]	Extend two two-inch conduits in underground ductbank from existing manhole provided by and located north of MS&E to five feet north of proposed MS&E fire lane. These conduits would provide Fire Alarm and heating, ventilation, and air conditioning (HVAC) control to the North Campus expansion area.[2]

Table PD-1 [continued]
Description of Proposed Infrastructure Improvements

Item No.	Campus Location	Project Description
8	Biomedical Teaching Complex	Provide concrete pads, conduit, and wiring for new emergency generator (Diesel Driven 1.7 to 2.0 MW unit pre-certified by SCAQMD) and paralleling switchgear. Recircuit 12kV distribution system serving Statistics Building, Boyce Hall, Webber Hall, and Batchelor Hall. Demolish the Electronic Shop (i.e., Burning Tower and Air Pollution Utility Buildings).
11	West Campus North of Parking Lot P30/V30	Convert Campus 4,160V system to 12kV system in the Campus main switching station. a. Provide new 5MVA, 12kV:4,160V transformer adjacent to and southeast of the existing switching station. The transformer would be fed from circuit 3A in Vault V2. b. Provide new 12kV feeder in underground ductbank from new transformer to two existing 4,160V main switchgears.
12	North Campus Engineering Complex[1], Parking Lots V25 and P25, and north of Student Recreation Center[3]	Extend two 12kV circuits in underground ductbank from new vault located 275 feet north of Vault 4G to Vault 27 and terminate in a new 15kV, five-way padmount switch at Vault 27 for North Campus electrical distribution loop.
13	North of Physical Education Building	Provide new 15kV, five-way padmount switch at Vault 4E.
14	North of Statistics Building	Provide new 15kV, five-way padmount switch at Vault 14.
15	West of South Campus Drive/ East Campus Drive Intersection	Extend existing 12kV circuit in underground ductbank from Vault 10 to new Entomology Building.
Natural Gas Supply and Distribution System		
5	North Campus Engineering Complex[1]	Extend natural gas line from manhole, located 300 feet east of Canyon Crest on North Campus Drive, north approximately 275 feet to new manhole. Extend piping east 250 feet to second manhole and stub out for new buildings.

1. Formerly referred to as the Lower Intramural Fields. Presently, the location of the Material Sciences & Engineering Building currently under construction.
2. Four other telecommunications conduits are to be provided in the same location under the MS&E project for telecommunications to the North Campus expansion area.
3. More specifically, between Linden Street and Student Recreation Center.

CHILLED WATER SUPPLY AND DISTRIBUTION SYSTEM

Item No. 1. As reflected in the LRDP, in response to planned enrollment increases and program growth, UCR plans to develop an area immediately north of North Campus Drive (currently used for athletic fields and the site of the MS&E Building currently under construction) to support additional new academic buildings. The infrastructure required to support future buildings in this area, which includes chilled water, does not currently exist north of North Campus Drive. This proposed improvement would be located in the North Campus Engineering Complex, in an area formerly referred to as the Lower Intramural Fields. Additionally, this area is the location of the Material Sciences & Engineering Building, which is currently under construction. This proposed improvement would extend a chilled water supply line and return, in order to provide chilled water for the buildings proposed north of North Campus Drive, in the existing soccer field. A manhole, holding all utilities, would be located in the center of the proposed courtyard. Utilities would be extended to each building, as it is being built without trenching in the roadway.

This improvement (combined with Item Nos. 2 and 5) would require approximately 395 cubic yards (cy) of cut and 395 cy of fill. Construction staging for this improvement, as well as Item Nos. 2, 4, 5, 6, 7, and 12 (in part), would occur along and adjacent to all trenches. There may also be a small lay down area (encompassing approximately 15 spaces) for up to six months in Parking Lot 19, which is located north of the PE Building and east of the CHASS I&R Building. Lot 19 is not identified on campus maps, because it is being used as a construction yard for the Commons Expansion project. In the past, Lot 19 has been used as a construction yard for the CHASS I&R Building. Therefore, use of this area would not take out any current parking spaces.

Item No. 9. Peak demand is projected to exceed the system's capacity by 2008-2009. At that time, the Campus would require operation of the existing chillers more frequently during peak hours, ultimately exceeding the current agreement as negotiated with the City. This Project component would increase the chiller and TES capacity to meet projected new building cooling loads through 2011. The proposed TES Tank would allow the Steam Plant/Central Utility Plant to cool the campus during on-peak hours without the operation of the electric chillers. This would allow the campus to maintain the favorable electric rates from the local utility and desired economy of operations. In addition, the added capacity would provide backup service for exceptionally high periods of demand.

To increase the necessary chiller and TES capacity, one 2,000-ton chiller with two pumps are proposed for installation within the existing Steam Plant/Central Utility Plant Building. Two cell-cooling towers are also proposed in the exterior of the Plant Building, however, within the Plant enclosure (i.e., an approximately ten-foot block wall. The cooling towers would be approximately 35 feet in height. Additionally, one 2.7-million gallon TES Tank (i.e., TES Tank #3), one TES pump, and one condenser water pump are proposed south of the Computing and Communications Building and west of existing TES Tank #2, in a presently undeveloped area. A small (approximately 18 feet x 32 feet) approximately 16-foot high building would be placed immediately to the north of proposed Tank #3 in order to house the proposed pumps and various control valves and panels. The finished tank site would be landscaped in accordance with the Campus Landscape Master Plan (Programs and Practices 4.1-2(a)).

Proposed TES Tank #3 would be constructed of pre-stressed concrete to be poured in place. Similar to existing TES Tank #2, the approximately 44-foot high tank would be recessed into the hillside, with only the upper portion visible. The bottom of the approximately 110-foot diameter

(107-foot inside diameter) tank would be at an elevation of approximately 1,147 feet above mean sea level (msl), while the top would be at approximately 1,191 feet above msl. The proposed location of TES Tank #3 is constrained by hydraulic design criteria that require matching the elevation of the existing TES tanks.

While the finished tank would be recessed into the hillside, construction would require a disturbance zone that would extend approximately 24 feet beyond the tank perimeter. The disturbance zone incorporates an approximately 15-foot perimeter around the outer tank wall that is required for maneuvering construction equipment, and an extended zone beyond the construction access limit for temporary slopes. The proposed tank would require approximately 37,400 cy of cut and 19,970 cy of fill, and the excess material (approximately 17,430 cy) would be exported from the improvement site and disposed of off campus, at a location to be determined by the contractor. Construction staging for this improvement would occur within the existing vacant area located to the north.

STEAM SUPPLY AND CONDENSATE RETURN SYSTEMS

Item No. 2. The infrastructure required to support future buildings in the area north of North Campus Drive, which includes steam and condensate return, does not currently exist in this area. This proposed improvement would provide steam and condensate return for the buildings proposed north of North Campus Drive. A manhole, holding all utilities, would be located in the center of the proposed courtyard. Utilities would then be extended to each building, as it is being built without trenching in the roadway.

The excavation associated with this improvement is included in Item No. 1. Construction staging for this improvement would be combined with Item No. 1's staging.

Item No. 10. The actual combined capacity of the four existing boilers is limited by the feed-water system for a total system output of 100,000 pounds-per-hour. The peak steam load in 2010 is estimated to be 97,000 pounds per hour. Under stable operating conditions, the four existing boilers would be sufficient to meet the future demands. However, the existing boilers are in poor condition, subject to failure, and do not comply with current environmental emission regulations. This would require the addition of a new low NO_x boiler to meet the increasing steam load and to meet the requirements of the SCAQMD. Also the existing deaerator is undersized to meet future demands and must be replaced with a larger unit to keep up with the increasing steam load.

Accordingly, Item 10 proposes one new 50,000 pound per hour boiler (i.e., Boiler #5) with economizer and Low NO_x burner at the Steam Plant/Central Utility Plant. The two existing undersized deaerators would be replaced with two new larger units (rated at 100,000 pounds per hour each) in order to support new Boiler #5 and increase the steam load. The deaerators would be cross-connected for redundancy and the feed water pumps would be upgraded to meet new Boiler #5's requirements. Together, existing Boiler #4 and proposed Boiler #5 would provide the campus with reliable code-compliant heating capacity to meet its demands through approximately 2012-2013. All proposed improvements would occur within the existing building. It is noted, the new boiler is not anticipated to operate concurrent with the three smaller boilers, which would be taken off-line, but would remain in place for use in emergency situations only. Additionally, the smaller remaining boilers would be refurbished or replaced in the future in order to satisfy SCAQMD Rule 1146 environmental emissions regulations.

DOMESTIC WATER SYSTEM

Item No. 3. The infrastructure required to support future buildings in the area north of North Campus Drive, which includes the domestic water system, does not currently exist in this area. Additionally, the existing water line in area of Canyon Crest Road and North Campus Drive is not adequate to meet future domestic water needs or future fire flow requirements. This proposed improvement would provide a new 12-inch domestic water line and a six-inch branch service. The new 12-inch line would complete the campus water loop along North Campus Drive and provide water for buildings on north side of North Campus Drive. This line would also increase fire flow capacity to the north and east side of campus.

This pipeline is proposed within the North Campus Drive right-of-way (ROW), which would be returned to pre-construction surface conditions after pipe placement. This improvement would require approximately 490 cy of cut and 490 cy of fill, and approximately 3,000 square feet (SF) of pavement removal/replacement. Construction staging for this improvement would occur along and adjacent to the trench within the North Campus Drive ROW. Temporary lane closures/detours would be required during construction.

SANITARY SEWER SYSTEM

Item No. 4. The infrastructure required to support future buildings in the area north of North Campus Drive, which includes the sanitary sewer system, does not currently exist in this area. This proposed improvement would provide a new eight-inch sewer water line and two new manholes. These improvements would provide sanitary sewer for the buildings proposed on the north side of North Campus Drive in the existing soccer field. A manhole for all utilities would be located in the center of the proposed courtyard. Utilities would then be extended to each building as it is being built without trenching in the roadway.

This improvement would require an equal amount of cut (approximately 2,450 cy) and fill (approximately 2,450 cy). Construction staging for this improvement would be combined with Item No. 1's staging.

ELECTRICAL SUPPLY DISTRIBUTION SYSTEM

The existing distribution system is problematic, as the campus is running on two systems: an old and unreliable 5kV system; and a modern and efficient 12kV system. The 12kV system would provide a more reliable and higher voltage power source to the buildings and would minimize the strains caused by the increased number of students and faculty. The proposed Phase 2 Project would convert the next increment of buildings from 5kV service and connect them to the 12kV system. The various improvements proposed to the electrical supply distribution system are described below.

Item No. 6. This proposed improvement would extend two existing 12kV circuits to two new vaults. The proposed extensions would serve the North Campus expansion area by providing a 12kV connection for future North Campus construction.

This improvement (combined with Item No. 7) would require approximately 675 cy of cut and 615 cy of fill. Construction staging for this improvement would be combined with Item No. 1's staging.

Item No. 7. This proposed improvement would extend two two-inch conduits, which would provide fire alarm and HVAC control to the North Campus expansion area. This Project component would provide required connections for future North Campus construction.

The excavation associated with this improvement is included in Item No. 6. Construction staging for this improvement would be combined with Item No. 1's staging.

Item No. 8. This improvement is proposed east of the Biomedical Teaching Complex. It would provide an electrical vault, concrete pads, conduit, and wiring for a new, approximately ten-foot high, emergency generator (Diesel Driven 1.7 to 2.0 MW unit pre-certified by SCAQMD) and paralleling switchgear. The 12kV distribution system would be recircuited. The Electronic Shop consisting of two buildings/structures totaling approximately 512 SF and generating approximately 18,800 cubic feet (CF) of waste material, would be demolished, as part of this improvement: Burning Tower Building (80 Square Feet) ; and Air Pollution Utility Building 432 SF.

Improvement Item Nos. 8 and 11 through 15 would complete the conversion of the East Campus from a 4,160V system to a 12kV system and provide for 12kV connections for future construction.

This improvement would require approximately 275 cy of cut and 255 cy of fill. Approximately 540 SF of pavement would be removed/replaced (approximately 30 cy of concrete). Construction staging for this improvement would occur along and adjacent to the trenches.

Item No. 11. This improvement would convert the Campus' 4,160V system to a 12kV system in the Campus' main switching station located in the West Campus, north of Parking Lot P30/V30. More specifically, a new 5MVA, 12kV:4,160V transformer would be provided adjacent to and southeast of the existing switching station (i.e., Riverside City Public Utilities/UCR Sub-Station). The transformer would be fed from circuit 3A in Vault V2. Additionally, a new 12kV feeder would be provided in the underground ductbank from the new transformer to two existing 4,160V main switchgears.

This improvement would require approximately 251 cy of cut and 231 cy of fill, and would place 22 cy of concrete. Approximately 540 SF of pavement would be removed/replaced (approximately 30 cy of concrete). Construction staging for this improvement would occur along and adjacent to the trenches.

Item No. 12. This improvement is proposed in the North Campus Engineering Complex, Parking Lots V25 and P25, and a linear area located between Linden Street and the Student Recreation Center. This improvement would extend two 12kV circuits in an underground ductbank from a new vault located 275 feet north of Vault 4G to Vault 27 and terminate in a new 15kV, five-way padmount switch at Vault 27 for the North Campus electrical distribution loop.

This improvement would require approximately 1,200 cy of cut and 1,100 cy of fill, and would remove approximately 140 cy of concrete, replacing it with approximately 270 cy. Construction staging for this improvement would occur along and adjacent to the trenches. Approximately 92 parking spaces within Parking Lots V25 and P25 would be inaccessible during construction of this improvement (approximately two weeks). Alternative parking would be available in Lot P24, and other campus lots. Signs would be posted prior to closure, including notice as to how to call

for assistance with disabled accessibility, which would include pick up and transportation as needed for the duration of the lot closure.

Item No. 13. This improvement would provide a new 15kV, five-way padmount switch at existing Vault 4E, which is located north of the Physical Education Building. This improvement would require approximately three (3) cy of cut and three (3) cy of fill, and would place approximately five (5) cy of concrete. Construction staging for this improvement would occur along and adjacent to the trenches.

Item No. 14. This improvement would provide a new 15kV, five-way padmount switch north of the Statistics Building. This improvement would require approximately 150 cy of cut and 145 cy of fill, and would place approximately five (5) cy of concrete. Construction staging for this improvement would occur along and adjacent to the trenches.

Item No. 15. This improvement would extend an existing 12kV circuit in an underground ductbank from Vault 10 to the new Entomology Building In an area generally located west of the South Campus Drive/East Campus Drive Intersection. This improvement would require approximately 640 cy of cut and 590 cy of fill, and would place approximately 50 cy of concrete. Construction staging for this improvement would occur along and adjacent to the trenches.

NATURAL GAS SUPPLY AND DISTRIBUTION SYSTEM

Item No. 5. The infrastructure required to support future buildings in the area north of North Campus Drive as contemplated by the LRDP, which includes the natural gas supply and distribution system, does not currently exist in this area. This proposed improvement would extend a natural gas line. This improvement would provide natural gas for the buildings proposed on the north side of North Campus Drive in the existing soccer field. A manhole, holding all utilities, would be located in the center of the proposed courtyard. Utilities can then be extended to each building as it is being built without trenching in the roadway.

The excavation associated with this improvement is included in Item No. 1. Construction staging for this improvement would be combined with Item No. 1's staging.

ANALYTIC METHOD

The proposed East Campus Infrastructure Phase 2 Project would extend the utility infrastructure to the development area north of the North Campus Drive and upgrade electrical, cooling, and heating services for the East Campus. For purposes of the analysis presented in this Initial Study, the proposed improvements have been grouped, as outlined below.

- The underground infrastructure improvements which would involve excavation and would not be visible once construction is complete are: Item Nos. 1 to 7, and 8 (in part), Item No. 11 (in part), and Item Nos. 12 to 15.

- The aboveground electrical improvements are: Item No. 8 (in part) (a generator) and Item No. 11 (in part) (a transformer).

- The aboveground improvements proposed for installation within existing buildings are:

- Chilled water supply improvements: Item No. 9 (in part) (a chiller and pumps), which would be located within the existing Satellite Plant Building; and

- Steam supply/condensate improvements: Item No. 10 (a boiler, deaerators, feed water pump upgrades), which would be located within the existing Steam Plant/Central Utility Plant Building.

- The aboveground chilled water supply improvement within the existing Satellite Chiller Plant perimeter, enclosed by an existing approximately ten-foot block wall is: Item No. 9, (in part) (two cooling towers).

- The aboveground chilled water supply improvements: Item No. 9 (in part) (TES Tank #3 and pump building).

4.3 PROJECT OBJECTIVES

The core objectives for the proposed East Campus Infrastructure Improvements Phase 2 Project are to:

- Continue the infrastructure improvements begun in Phase I in order to support current and projected enrollment and program growth.

- Improve the capacity and distribution capability of the existing campus utilities network to support the utility demands through 2011-12 of buildings currently under construction and future buildings.

- Address the next series of critical utility requirements by:

  - Improving the existing 12kV electrical services to support short- and long-term building growth and providing reliable and increased capacity to existing buildings.

  - Increasing the heating capacity to the East Campus.

  - Enhancing chilled water capacity.

  - Extending utility (potable and domestic water, steam, chilled water, sanitary sewer, and 12kV electrical) distribution service to the developing area north of North Campus Drive.

5.0 RELATIONSHIP TO THE 2005 LONG RANGE DEVELOPMENT PLAN

In order to determine the proposed Project's consistency with the 2005 LRDP and 2005 LRDP EIR, the following questions must be answered:

- Is the proposed Project included in the scope of the development projected in the 2005 LRDP?
- Is the proposed location of the Project in an area designated for this type of use in the 2005 LRDP?
- Are the changes to campus population associated with the proposed Project included within the scope of the 2005 LRDP's population projections?
- Are the objectives of the proposed Project consistent with the objectives adopted for the 2005 LRDP?
- Is the proposed Project within the scope of the cumulative analysis in the 2005 LRDP EIR?

The following discussion describes the proposed Project's relationship to and consistency with the development projections, population projections, land use designations, objectives, and cumulative impacts analyses contained in the 2005 LRDP.

5.1 2005 LRDP SCOPE OF DEVELOPMENT

The proposed Project is consistent with the planning principles of the 2005 LRDP. According to the LRDP, the campus student population is expected to almost double over 15 years: from 12,703 students in 2000/2001 to 25,000 students by 2015. The LRDP estimates that a total of approximately 11.8 million gross square feet (gsf) of academic buildings, support facilities, and student housing (i.e., a net increase of approximately 7.1 million gsf) would be required to support a total future enrollment of 25,000 students. Based upon the Land Use Plan and projected development (LRDP Table 3-2 and Figure 3-6), implementation of the 2005 LRDP would result in infill development in the Academic Core, as well as expansion of the Academic Core, which is described as follows (LRDP Page 3-18):

> *New academic, administrative, student support, or library buildings could be developed in the area currently occupied by the Lower Intramural Fields, along the northern edge of University Avenue (south of the Gage Basin and west of Canyon Crest Drive), a portion of Parking Lot 13 (east of the under construction Physical Sciences Building), and Parking Lot V10. In addition to academic buildings, administration and library facilities could occur at these locations.*

Moreover, the LRDP concluded the following regarding UCR's infrastructure (LRDP Pages 3-17 and 3-24, respectively):

Existing on-campus facilities would continue to be subject to renovation and modification, including seismic retrofit, expansion, maintenance, and infrastructure improvements during the time horizon of the 2005 LRDP.

Most of the major utility systems will require extension or expansion in order to accommodate additional development on the East Campus.

Therefore, the proposed Project would provide the essential infrastructure to support facilities for instruction and research, both within the area north of North Campus Drive (i.e., Lower Intramural Fields), as well as within the Academic Core, as anticipated in the LRDP. Without the infrastructure improvements provided by the proposed Project, the Campus would be unable to support the current and projected needs of the academic programs.

5.2 2005 LRDP LAND USE DESIGNATION

The 2005 LRDP land use categories for the proposed improvement sites are:

- Academics;
- Athletics and Recreation;
- Open Space;
- Open Space Reserve;
- Campus Support; and
- Parking.

The provision of utilities within these LRDP land use categories is consistent with the 2005 LRDP.

5.3 2005 LRDP POPULATION PROJECTIONS

The 2005 LRDP projects that, through 2015-2016, the on-campus population will increase to include approximately 25,000 students (three-quarter headcount average), 7,916 faculty and staff, and 2,624 other individuals, translating to a total campus population of approximately 35,540.[1] The 2000/2001 baseline headcount was approximately 12,703 students (three-quarter headcount average), 3,742 faculty and staff, and 1,196 other individuals. The proposed Project would introduce no new students, faculty, or staff, thus would not directly result in population growth. However, the Project would result in secondary population growth in that the infrastructure would allow the campus to construct new buildings that would accommodate more students, faculty, etc. The Project's secondary/indirect population growth impacts, however, are within the scope of anticipated population growth analyzed in the LRDP EIR, as documented in this Initial Study/Mitigated Negative Declaration.

[1] University of California, Riverside, *University of California Riverside Long Range Development Plan 2005 Table 1: Projected Campus Population*, December 2004.

5.4 2005 LRDP OBJECTIVES

The primary objective of the 2005 LRDP is to plan for the Riverside campus' share of the University of California's short- and long-term enrollment demands. In addition, the 2005 LRDP aims to:

- Enhance UCR's image and identity;
- Accommodate planned growth for UCR to 25,000 students, while retaining flexibility for unanticipated additional future needs;
- Recognize teaching and research change, and encourage interdisciplinary endeavors by identifying a flexible academic zone rather than individual college precincts;
- Increase the size of the on-campus residential community and thereby improve opportunities for social interaction and socialization: a living/learning environment;
- Improve university/town interactions and synergy; encourage new development and intensification of activity on University Avenue;
- Emphasize strong connections and ease of access within campus and with the surrounding community; and
- Create a regional model of planning, design and environmental stewardship, protecting the natural environment and incorporating sustainable planning and design practices.

The proposed Project would support these main 2005 LRDP objectives by continuing the infrastructure improvements begun in Phase I in order to support current and projected enrollment and program growth, improving the capacity and distribution capability of the existing campus utilities network, and addressing the next series of critical utility requirements. Additionally, several Project components are necessary for the campus to comply with new regulatory requirements and to minimize campus demand on local utility infrastructure.

5.5 2005 LRDP EIR CUMULATIVE IMPACTS ANALYSES

As discussed above, the proposed Project would not impact and supports the scope of campus development projected in the 2005 LRDP EIR, since it would not introduce new students, faculty, or staff. The 2005 LRDP EIR identified all significant and unavoidable impacts that could occur from the implementation of the 2005 LRDP, including all significant and unavoidable impacts related to cumulative development. All feasible mitigation measures to avoid or substantially lessen the significant adverse project and cumulative impacts associated with growth and facility development under the 2005 LRDP were also identified in the LRDP EIR. The cumulative impact analysis in the 2005 LRDP EIR, which analyzed campus development through 2015-2016 as projected in the 2005 LRDP, is incorporated by reference in this tiered Initial Study for this Project pursuant to California Code of Regulations, Title 14, Section 15130(d). The proposed East Campus Infrastructure Improvements Phase 2 Project would not increase the severity of the impacts previously identified in the 2005 LRDP. All significant and unavoidable impacts were fully and adequately addressed in the LRDP EIR and in the Findings and Overriding Considerations adopted by the University in connection with its approval of the

2005 LRDP and certification of the 2005 LRDP EIR. There are no known changes to local growth plans or other changes in the region since certification of the 2005 LRDP EIR that would substantially change the document's conclusions regarding cumulative impacts. Therefore, this Initial Study concludes that the proposed Project is consistent with the 2005 LRDP and would not result in any significant or potentially significant cumulative environmental impacts not previously adequately addressed by the 2005 LRDP EIR, consistent with *CEQA Guidelines* Section 15130(d) and 15152(f).

6.0 TIERED INITIAL STUDY CHECKLIST/ EVALUATION OF ENVIRONMENTAL IMPACTS

6.1 AESTHETICS

BACKGROUND

Potential aesthetic impacts as a result of full implementation of the 2005 LRDP were evaluated in Section 4.1 (Aesthetics) of the 2005 LRDP EIR (Pages 4.1-1 through 4.1-37). The proposed Project is within the scope of the analysis presented in the 2005 LRDP EIR.

The 2005 LRDP EIR Planning Strategies (PSs), Programs and Practices (PPs), and Mitigation Measures (MMs) related to aesthetic impacts that are applicable to and/or included in the proposed Project are listed following each discussion below. (Refer to Appendix 11.1, *Applicable 2005 LRDP EIR Planning Strategies, Programs and Practices, and Mitigation Measures*, for the full text.)

Would the project:	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?				✘	

DISCUSSION

The 2005 LRDP EIR identified view locations and defined scenic vistas. In the vicinity of the UCR campus, the Box Springs Mountains are the most prominent visual feature from many locations. Thus, the LRDP EIR considered sweeping panoramic views of the Box Springs Mountains from publicly accessible viewpoints (i.e., roads or public gathering places such as Carillon Mall or the Lower Intramural Fields).

Most infrastructure improvements would be low profile, located underground, or within existing buildings, and would not have substantial adverse effects on views of the Box Springs Mountains. The cooling towers proposed within the Satellite Chiller Plant would be buffered by the existing ten-foot block wall and would be in proximity to existing structures, thus would not obstruct views.

The transformer (Item No. 11, in part) is proposed at the existing electrical sub-station, adjacent to Lot P30. Although views of the mountains are available from Lot P30, the transformer is proposed north of the vantage point, thus views would not be obstructed. Further, since Lot

P30 is not a public gathering place and thus not considered a key vantage point, views of Box Springs Mountains from Lot P30 are not considered a scenic vista in the LRDP EIR.[2]

TES Tank #3 and the pump building are proposed west of TES Tank #2, in the lower slopes of the southeast hills. According to LRDP EIR Figure 4.1-1, *Key to View Locations*, there are no vantage points located in proximity to the proposed tank site. There are no on-campus views of the mountains that would be obstructed by proposed TES Tank #3 or the pump building. Additionally, views of the lower slopes of the southeast hills, and thus the proposed tank site, are not available from on-campus locations or along I-215/SR-60, since these would be obscured by existing campus development and intervening vegetation. Additionally, TES Tank #3 would be recessed into the hillside, with only the upper portion visible, similar to existing TES Tank #2. Therefore, implementation of proposed TES Tank #3 and pump building would not have a substantial adverse effect on a panoramic view of the Box Springs Mountains or southeast hills and a less than significant impact would occur in this regard. Compliance with PP 4.1-1, which involves the Campus Design Guidelines and is incorporated as part of the Project, would further minimize potential impacts to scenic vistas resulting from these improvements.

PP 4.1-1: The campus shall provide design architects with the Campus Design Guidelines and instructions to implement the guidelines, including those sections related to use of consistent scale and massing, compatible architectural style, complimentary color palette, preservation of existing site features, and appropriate site and exterior lighting design.

Would the project:	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?					✘

DISCUSSION

There are no state scenic highways located in the vicinity of the UCR campus. Therefore, implementation of the proposed infrastructure improvements would not substantially damage scenic resources within a state scenic highway.

No outcrops or core-stones are present at the ground surface of the proposed tank site.[3] Moreover, TES Tank #3 has been sensitively sited in that it is proposed in the lower slopes of the southeast hills and would be recessed into the hillside (with only the upper portion visible). Therefore, TES Tank #3 would not damage scenic resources. No impact would occur in this regard.

[2] University of California, Riverside, *University of California Riverside 2005 Long Range Development Plan Final Environmental Impact Report Volume I Draft EIR*, Page 4.1-14.

[3] C.H.J. Incorporated, *Subsurface Investigation Proposed Thermal Energy Storage Tanks University of California Riverside*, November 8, 2001, Page 6.

Item No. 10 involves improvements that would be located within the Steam Plant/Central Utility Plant Building, an LRDP designated historic structure. Potential impacts to historic structures are addressed in Section 6.5, *Cultural Resources*.

Would the project:	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
c. Substantially degrade the existing visual character or quality of the site and its surroundings?				✘	

DISCUSSION

Most infrastructure improvements would be located underground or within existing buildings, thus, would not degrade the visual character or quality of the improvement sites and their surroundings. The cooling towers are proposed within the Satellite Chiller Plant and would be buffered by the existing ten-foot block wall. The cooling towers would represent continuation of an existing use, thus would not impact the visual character of the existing plant site.

Item No. 8 is proposed within an enclosed utility area, east of the Biomedical Teaching Complex in the academic core. This improvement involves demolition of two utility buildings/structures and installation of an aboveground generator within an enclosed area. The existing perimeter fencing and landscaping would be maintained/replaced as needed. The proposed generator would not degrade the existing visual character or quality of the improvement site or its surroundings, since it would be buffered by the existing fencing. A less than significant impact would occur in this regard.

TES Tank #3 and the pump building are proposed in the area south of South Campus Drive, in the lower slopes of the southeast hills. The topography in this area generally slopes up to the southeast hills. The area south of the tank site (and east of existing TES Tank #2), comprises the largest undeveloped area of the campus, which remains in a relatively natural state, with grasslands, scrub, and rock outcroppings. Various one and two story buildings also exist in this area. Further east are the Botanic Gardens, citrus orchards, and several buildings. Figure 4.1-10, *Open Space Framework Elements*, of the LRDP EIR illustrates the Campus' open space elements and indicates TES Tank #3 would be located within the northern edge of an area designated as Natural Open Space. Figure 3-6, *Proposed Land Use* Plan, of the LRDP EIR designates this area as Open Space Reserve. This Land Use designation allows for "a limited amount of sensitively-sited infrastructure facilities.

Construction of TES Tank #3 and the pump building would permanently alter the visual character of the improvement site, replacing the existing vegetation and topography with a utility. PS Open Space 2 permits sensitively sited utility projects within the Natural Open Space Reserve. As previously noted, TES Tank #3 has been sensitively sited in that it would be recessed into the hillside (with only the upper portion visible). Exhibit 5, *Photograph of TES Tank #2*, illustrates existing TES Tank #2, which is representative of TES Tank #3's appearance at completion and including new plant growth. Further, PS Open Space 2 requires the use of native plant materials for screening and restoration. Construction of TES Tank #3 would be subject to compliance with PS Conservation 2 and PP 4.1-1, in order to further minimize

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INITIAL STUDY/MITIGATED NEGATIVE DECLARATION
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Photograph of TES Tank No. 2

Exhibit 5

potential impacts to the visual character of the improvement site. Due to the remote location of these improvements, proximity to existing TES Tank #2, and proposed design, construction of TES Tank #3 would not degrade the existing visual character or quality of the site and its surroundings.

Item No. 11 (in part) involves installation of an aboveground transformer in the West Campus, north of Lot P30, a large surface parking lot. The transformer would be placed between I-215/SR-60 and the existing sub-station, thus, would not be visible from adjacent areas. Additionally, the transformer would be similar in nature to the existing sub-station. Therefore, the proposed transformer would not degrade the existing visual character or quality of the development site and its surroundings.

The following PSs and PPs are incorporated into the proposed Project and as discussed above, would ensure that visual character and quality impacts would be less than significant.

PS Open Space 2: Within the Natural Open Space Reserve, no major facilities are allowed (except for sensitively sited utility projects), vehicular and pedestrian access will be limited, and native plant materials will be used where needed for erosion, screening, and restoration.

PS Conservation 2: Site buildings and plan site development to minimize site disturbance, reduce erosion and sedimentation, reduce stormwater runoff, and maintain existing landscapes, including healthy mature trees, whenever possible.

PP 4.1-1: The campus shall provide design architects with the Campus Design Guidelines and instructions to implement the guidelines, including those sections related to use of consistent scale and massing, compatible architectural style, complimentary color palette, preservation of existing site features, and appropriate site and exterior lighting design.

Would the project:	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
d. Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?				✘	

DISCUSSION

Glare largely results from sunlight reflection off certain building surfaces, with glass typically contributing the highest degree of reflectivity. The two primary sources of light include light from building interiors passing through windows and light from exterior sources (i.e., street lighting, building illumination, security lighting, and landscape lighting). Introduction of light can diminish the view of the clear night sky, and if uncontrolled, can disturb wildlife in natural habitat areas.

Most infrastructure improvements would be located underground or within an existing building, thus, would not require lighting or generate glare. Additionally, the proposed aboveground generator (Item No. 8, in part), cooling towers (Item No. 9, in part), and transformer (Item No.

11, in part) would not require lighting or be of reflective materials. Therefore, these proposed improvements would not introduce a new source of light or glare adversely affecting day or nighttime views in the area.

TES Tank #3 and the pump building are proposed in the lower slopes of the southeast hills. Light and glare are presently not generated at this improvement, which is currently vacant. However, light and glare are presently generated from the nearby buildings, including the Computing and Communications Building located to the north. The proposed improvements would not be utilized on a daily basis, thus would result in limited use of lighting for building interior and exterior spaces (i.e., lighting around the structure, entryway, and signs). In addition, the proposed improvements would result in limited use of lighting for areas involving nighttime use, including walkways and security lighting. Due to the proposed remote location of these improvements, distance to residential uses, and the limited use of interior/exterior lighting, TES Tank #3 and the pump building would not introduce substantial sources of light and glare that would adversely affect day or nighttime views and a less than significant impact would occur in this regard. Implementation of PS Conservation 2 and PP 4.1-1, identified below and incorporated as part of the proposed Project, would further minimize potential impacts associated with the creation of light and glare.

PS Conservation 2: Site buildings and plan site development to minimize site disturbance, reduce erosion and sedimentation, reduce stormwater runoff, and maintain existing landscapes, including healthy mature trees, whenever possible.

PP 4.1-1: The campus shall provide design architects with the Campus Design Guidelines and instructions to implement the guidelines, including those sections related to use of consistent scale and massing, compatible architectural style, complimentary color palette, preservation of existing site features, and appropriate site and exterior lighting design.

6.2 AGRICULTURAL RESOURCES

BACKGROUND

Potential impacts to agricultural resources as a result of full implementation of the 2005 LRDP were evaluated in Section 4.2 (Agriculture) of the 2005 LRDP EIR (Pages 4.2-1 through 4.2-11). The proposed Project is within the scope of the analysis presented in the 2005 LRDP EIR.

There are no relevant PSs, PPs, or MMs adopted with the 2005 LRDP EIR that are applicable to the proposed Project.

Would the project:	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?					✘

DISCUSSION

Figure 4.2-1 of the LRDP EIR (Farmland on the UCR Campus) illustrates the locations of the Prime Farmland and Farmland of Statewide Importance on the UCR campus. As illustrated on Figure 4.2-1, farmland is not present on the proposed improvement sites.

Would the project:	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract Resources Agency, to non-agricultural use?					✘

DISCUSSION

The 2005 LRDP land use categories for the proposed improvement sites are: Academic; Athletics and Recreation; Open Space; Campus Support; and Parking. The proposed improvement sites are not zoned for agricultural use or subject to a Williamson Act Contract, therefore, no conflict would occur in this regard.

Would the project:	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
c. Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?					✘

DISCUSSION

The improvement sites are located within the campus' academic core and along its edges. No farmland or agricultural uses exist in their vicinity. The Project is proposed in order to support the utility demands of existing and future buildings through 2011-2012, by improving the capacity and distribution capability of the existing campus utilities. Therefore, Project implementation would not result in changes to the existing environment, which could result in conversion of Farmland, to non-agricultural use.

6.3 AIR QUALITY

BACKGROUND

Potential impacts to air quality as a result of full implementation of the 2005 LRDP were evaluated in Section 4.3 (Air Quality) of the 2005 LRDP EIR (Pages 4.3-1 through 4.3-33). The proposed Project is within the scope of the analysis presented in the 2005 LRDP EIR.

The Project site is located within the City of Riverside, which is part of the South Coast Air Basin (Basin) and under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SCAQMD's current guidelines and emission thresholds established within the *CEQA Air Quality Handbook* were adhered to in the assessment of air quality impacts for the proposed Project. The air quality analysis estimated emissions of air pollutants associated with short-term construction and long-term operations; refer to Appendix 11.3, *Air Modeling Data*.

Both the State of California and Federal government have established health-based Ambient Air Quality Standards (AAQS) for six criteria air pollutants. These pollutants include carbon monoxide (CO), ozone (O_3), nitrogen oxides (NO_X), sulfur oxides (SO_X), particulate matter up to 10 microns and 2.5 microns in diameter (PM_{10} and $PM_{2.5}$, respectively), and lead (Pb). O_3 is formed by a photochemical reaction between NO_X and reactive organic compounds (ROGs). Thus, impacts from O_3 are assessed by evaluating impacts from NO_X and ROGs.

The net increase in pollutant emissions determines the significance and impact on regional air quality as a result of the proposed Project. The results also allow the local government to determine whether the proposed Project would deter the region from achieving the goal of reducing pollutants in accordance with the air quality management plan in order to comply with Federal and State Ambient Air Quality Standards (AAQS).

The PSs, PPs, and MMs related to air quality impacts adopted with the 2005 LRDP EIR that are applicable to the proposed Project are discussed in the analysis.

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:	**Potentially Significant Impact**	**Less Than Significant With Project-Level Mitigation Incorporated**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant Impact**	**No Impact**
a. Conflict with or obstruct implementation of the applicable air quality plan?				✘	

DISCUSSION

As previously stated, the proposed Project is located within the South Coast Air Basin (SCAQMD). Consistency with the *2007 Air Quality Management Plan for the South Coast Air Basin* (*2007 Air Quality Management Plan*) means that a project is consistent with the goals, objectives, and assumptions in the respective plan to achieve the Federal and State air quality standards. Per the SCAQMD *CEQA Air Quality Handbook*, there are two main indicators of a project's consistency with the applicable Air Quality Management Plan:

- Whether a project would increase the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the *2007 Air Quality Management Plan*; and

- Whether a project would exceed the *2007 Air Quality Management Plan's* assumptions for 2030 or yearly increments based on the year of project buildout and phasing.

As indicated in the operational analysis provided in Response 6.3(b) below, the proposed Project would not exceed the SCAQMD's thresholds of significance. Therefore, the proposed Project is consistent with the *2007 Air Quality Management Plan* in this regard.

Due to the Project's scope and nature, it is not anticipated to violate air quality standards or create a significant air quality impact; refer to Response 6.3(b) below. The Project would not exceed the 2007 AQMP's emissions assumptions for the improvement sites, as the proposed infrastructure improvements are in conformance with the development assumptions in the 2005 LRDP EIR project. Therefore, as the Project would not exceed the SCAQMD's emissions thresholds and is consistent with the assumptions programmed into the 2005 LRDP EIR, impacts related to air quality plan consistency would be less than significant.

AIR QUALITY - ***Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:***	**Potentially Significant Impact**	**Less Than Significant With Project-Level Mitigation Incorporated**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant Impact**	**No Impact**
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?				✘	

DISCUSSION

Short-Term Construction Emissions

Construction associated with the proposed infrastructure improvements would generate short-term air quality impacts. The short-term air quality analysis considers the following temporary impacts from the Project.

- Particulate matter emissions due to clearing, grading, excavation, and the use of heavy equipment and trucks;
- Particulate matter emissions from heavy equipment use; and
- Emit exhaust emissions due to commuting construction workers and trucks hauling equipment.

Variables factored into estimating the total construction emissions include the level of activity, length of construction period, number of pieces and types of equipment in use, site characteristics, weather conditions, number of construction personnel, and the amount of materials to be transported on-site or off-site. A listing of the construction equipment assumed in the air quality modeling is included in Appendix 11.3.

Fugitive Dust Emissions. Fugitive dust (PM_{10} and $PM_{2.5}$) from grading and construction is expected to be short-term and would cease upon completion of the proposed improvements. Most of this material is composed of inert silicates, which are less harmful to health than the complex organic particulates released from combustion 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. The greatest amount of fugitive dust generated is expected to occur during site excavation and grading. Dust generated by such activities usually becomes

more of a local nuisance than a serious health problem. Of particular concern is the amount of PM_{10} generated as a part of fugitive dust emissions.

During construction, the contractors would be required to comply with regional rules, which assist in reducing short-term construction-related air pollutant emissions. 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 development area of the proposed improvements. Rule 403 also requires that all active operations utilize the applicable best available control measures included in Table 1 of Rule 403. Table 1 of Rule 403 is intended to minimize fugitive dust emissions from each fugitive dust source type within the active operation. The applicable control measures target various construction operations such as backfilling, clearing and grubbing, crushing, cut and fill, demolition, earth-moving activities, bulk material import and export, construction staging, stockpiles/bulk material handling, trenching, and loading. The applicable measures from Table 1 of Rule 403 suggest methods such as covering stockpiles with tarps and the application of water to stabilize materials.

Earthwork (i.e., excavation, trenching, etc.), in various quantities, would be necessary for construction of all proposed infrastructure improvements, with the exception of Item No. 10, which involves a boiler upgrade within an existing building. The total earthwork associated with the proposed Project is approximately 70,200 cy. Additionally, Item No. 8 involves demolition of two utility buildings/structures totaling approximately 18,000 cf. The URBEMIS 2007 computer model calculates PM_{10} and $PM_{2.5}$ fugitive dust as part of the site earthwork calculations; refer to Table AQ-1, *Construction Air Emissions*. Maximum particulate matter emissions would occur during the initial months of construction, when grading activities would occur.

Table AQ-1
Construction Air Emissions

Emissions Source	Pollutant (pounds/day)[1]					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2009 Mitigated Emissions[2]	3.70	32.23	16.83	0.01	3.87	1.93
2009 Unmitigated Emissions	3.70	32.23	16.83	0.01	11.61	3.55
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Is Threshold Exceeded After Mitigation?	***No***	***No***	***No***	***No***	***No***	***No***
2010 Mitigated Emissions	51.25	35.56	49.06	0.04	2.72	2.39
2010 Unmitigated Emissions	56.39	35.56	49.06	0.04	2.72	2.39
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Is Threshold Exceeded After Mitigation?	***No***	***No***	***No***	***No***	***No***	***No***

Notes:
1. Emissions were calculated using the URBEMIS 2007 version 9.2.4 Computer Model, as recommended by the SCAQMD.
2. The reduction/credits for construction emission mitigations are based on mitigation included in the URBEMIS 2007 version 9.2.4 computer model and as typically required by the SCAQMD through Rule 403. The mitigation includes the following: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces twice daily; cover stock piles with tarps; water all haul roads twice daily; and limit speeds on unpaved roads to 15 miles per hour.
3. Refer to Appendix 11.3, *Air Modeling Data*, for assumptions used in this analysis, including quantified emissions reduction by mitigation measures.

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 infrastructure improvement sites, emissions produced on-site as the equipment is used, and emissions from trucks transporting materials to/from the sites. As presented in Table AQ-1, construction equipment and worker vehicle exhaust emissions would be below the established SCAQMD thresholds. Therefore, air quality impacts from equipment and vehicle exhaust emission would be less than significant.

ROG Emissions. 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 the URBEMIS 2007 model.

The greatest ROG emissions would be generated during the application of asphalt along North Campus Drive (Item No. 3) and within the Biomedical Teaching Complex (Item No. 8), for a total of approximately 3,540 square feet). Based on the modeling, the proposed Project would not result in an exceedance of the ROG emissions standard, and therefore would be considered less than significant.

Asbestos. Pursuant to guidance issued by the Governor's Office of Planning and Research, State Clearinghouse, lead agencies are encouraged to analyze potential impacts related to naturally occurring asbestos (NOA). 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 CARB 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.

Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties of the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. 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* (dated August 2000), the proposed Project is not located in an area where NOA is likely to be present. Therefore, impacts would be considered less than significant.

As discussed above, the proposed Project would result in less than significant short-term construction emissions. Notwithstanding, in order to further minimize construction emissions, compliance with PP 4.3-2(a), which involves best management practices, PP 4.3-2(b), which involves implementation of dust control measures, and PP 4.3-2(c), which involves compliance with asbestos regulations, would be required.

Long-Term Operational Emissions

Long-term air quality impacts generally involve mobile source emissions generated from a project's traffic and stationary source emissions. As the Project consists of infrastructure improvements, the emissions would be generated by equipment that utilize internal combustion engines and indirect emissions due to energy consumption. More specifically, Project operational emissions would be generated by the following improvements:

- Item No. 8: One emergency generator (Diesel Driven 1.7 to 2.0 MW unit pre-certified by SCAQMD) and paralleling switchgear.
- Item No. 9: One 2,000-ton chiller with two pumps, two cell-cooling towers, and TES pump and one condenser water pump.
- Item No. 10: One 50,000 pound per hour (lb/hr) boiler (i.e. Boiler #5) with economizer and low nitrogen oxides ($NO_{x)}$ burner) and new deaerators rated at 100,000 lb/hr each.

Long-term emissions from mobile sources (i.e., motor vehicles) would not occur, as the Project does not involve a trip generating land use.

Area Source Emissions

Area source emissions would be generated due to an increased demand for electrical energy and natural gas associated with the proposed infrastructure improvements. This is based on the assumption that those power plants supplying electricity to the site are utilizing fossil fuels. Electric power generating plants are distributed throughout the Basin and western United States, and their emissions contribute to the total regional pollutant burden. Indirect emissions related to energy consumption would be 0.073 tons/year of CO, 0.00365 tons/year of ROG, 0.42 tons/year of NO_x, 0.0438 tons/year of SO_x and 0.0146 tons/year of PM_{10}. These emissions would not exceed the LRDP's emissions estimates, which included the proposed infrastructure improvements. Therefore less than significant impacts would occur in this regard. Notwithstanding, in order to further minimize Project emissions, compliance with MM 4.3-3, which involves annual inspections, would be required.

Backup Power Supply/Boiler

Backup power would be provided via uninterruptible power supplies and diesel generators. Item No. 8 involves one emergency generator (diesel driven 1.7 to 2.0 megawatt unit that would be pre-certified by SCAQMD) that would start automatically, in the event utility power failed. The generator would not start instantaneously, thus, would require a battery backup system. In many facilities, the operator of the facility provides large inverters to provide alternating current (AC) power from the batteries. Emissions associated with the generator would occur only in the event of a power disruption and during periodic testing and maintenance periods. As a result, emissions would be negligible, resulting primarily in NO_X and diesel particulate matter. Power disruptions tend to be infrequent and short in duration. Therefore, a less than significant impact would occur in this regard.

Item No. 10 involves installation of a new boiler at the Steam Plan/Central Utility Plant. However, a low NO_x burner and ammonia injection system would be installed, which would capture and treat NO_x emissions to the current SCAQMD limits.

It is noted, the new boilers are not anticipated to operate concurrent with old boilers, which would remain in place solely for emergency purposes. Additionally, emissions associated with the existing boilers that would remain in place would occur only in the event of an emergency and during periodic testing and maintenance periods. As a result, emissions would be negligible. As discussed above, Boiler #4 has been refurbished in order to reduce its emissions to within acceptable SCAQMD levels and is performing better than projected. Additionally, the smaller remaining boilers would be refurbished or replaced in the future, in order to satisfy SCAQMD Rule 1146. Therefore, a less than significant impact would occur in this regard.

The following LRDP PSs, PPs, and MMs are incorporated into the proposed Project and as discussed above, would ensure that the proposed Project would not violate an air quality standard or contribute substantially to an existing or projected air quality violation.

PP 4.3-2(a) Construction contract specifications shall include specific Best Management Practices (BMPs) for reducing construction air quality impacts.

PP 4.3-2(b) The campus shall continue to implement dust control measures consistent with SCAQMD Rule 403 – Fugitive Dust.

PP 4.3-2(c) The campus shall continue to implement SCAQMD Rule 1403 – Asbestos.

MM 4.3-3 The campus shall annually inspect and enforce an emissions reduction control strategy.

AIR QUALITY - *Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:*	**Potentially Significant Impact**	**Less Than Significant With Project-Level Mitigation Incorporated**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant Impact**	**No Impact**
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)?				✘	

DISCUSSION

Cumulative Short-Term Emissions

With respect to the proposed Project's construction-period air quality emissions and cumulative Basin-wide conditions, the SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the *2007 Air Quality Management Plan* 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. 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 disturbance area of the proposed infrastructure improvement. 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 Air Quality Management Plan emissions control measures) would also be imposed on construction projects throughout the Basin, which would include related projects.

Compliance with SCAQMD rules and regulations, as well as the PSs, PPs, and MMs related to air quality impacts adopted with the 2005 LRDP EIR, would reduce the Project's construction-related impacts to a less than significant level. Thus, it can be reasonably inferred that the Project-related construction emissions, in combination with those from other projects in the area, would not substantially deteriorate the local air quality. Thus, a less than significant cumulative impact would occur in this regard.

Cumulative Long-Term Emissions

The SCAQMD does not recommend quantified analysis of cumulative operational emissions, nor does it provide separate methodologies or thresholds of significance to be used to assess cumulative operational impacts. However, if individual development projects generate operational emissions that exceed the SCAQMD recommended daily thresholds, a project's specific impacts would also cause a cumulative considerable increase in emissions for those pollutants for which the Basin is in non-attainment.

As previously stated, the proposed Project would not exceed the SCAQMD's thresholds of significance for regional criteria pollutants. Additionally, the proposed improvements are consistent with the growth identified in the LRDP. As a result, the proposed Project would not contribute a cumulatively considerable net increase of any nonattainment criteria pollutant. Therefore, cumulative impacts associated with Project operations would be less than significant.

Global Climate Change Discussion

California is a substantial contributor of global greenhouse gases, emitting over 400 million tons of carbon dioxide (CO_2) a year.[4] Climate studies indicate that California is likely to see an increase of three to four degrees Fahrenheit over the next century. Methane is also an important greenhouse gas that potentially contributes to global climate change. Greenhouse gases are global in their effect, which is to increase the earth's ability to absorb heat in the atmosphere. Because primary greenhouse gases have a long lifetime in the atmosphere, accumulate over time, and are generally well-mixed, their impact on the atmosphere is mostly independent of the point of emission.

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

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

[4] California Energy Commission, *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004,* 2006. http://www.energy.ca.gov/global_climate_change/inventory/documents/index.html

The impact of anthropogenic (i.e., human) activities on global climate change is readily apparent in the observational record. For example, surface temperature data shows that 11 of the 12 years from 1995 to 2006 rank among the 12 warmest since 1850, the beginning of the instrumental record for global surface temperature.[5] In addition, the atmospheric water vapor content has increased since at least the 1980s over land, sea, and in the upper atmosphere, consistent with the capacity of warmer air to hold more water vapor; ocean temperatures are warmer to depths of 3,000 feet; and a marked decline has occurred in mountain glaciers and snow pack in both hemispheres, and polar ice and ice sheets in both the artic and Antarctic regions.

Air trapped by ice has been extracted from core samples taken from polar ice sheets to determine the global atmospheric variation of carbon dioxide, methane, and nitrous oxide from before the start of the industrialization, around 1750, to over 650,000 years ago. For that period, it was found that carbon dioxide concentrations ranged from 180 ppm to 300 ppm. For the period from around 1750 to the present, global carbon dioxide concentrations increased from a pre industrialization period concentration of 280 ppm to 379 ppm in 2005, with the 2005 value far exceeding the upper end of the pre-industrial period range.

The primary effect of global climate change has been a rise in average global tropospheric temperature of 0.2° Celsius per decade, determined from meteorological measurements world wide between 1990 and 2005.[6] Climate change modeling using 2000 emission rates shows that further warming would occur, which would induce further changes in the global climate system during the current century.[7] Changes to the global climate system and ecosystems, as well as to California would include, but not be limited to:

- The loss of sea ice and mountain snow pack resulting in higher sea levels and higher sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures;[8]

- Rise in global average sea level primarily due to thermal expansion and melting of glaciers and ice caps, and the Greenland and Antarctic ice sheets;[9]

- Changes in weather that include widespread changes in precipitation, ocean salinity, and wind patterns, and more energetic aspects of extreme weather including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones;[10]

- Decline of Sierra snowpack, which accounts for approximately half of the surface water storage in California, by 70 percent to as much as 90 percent over the next 100 years;[11]

[5] Intergovernmental Panel on Climate Change, *Climate Change 2007: The Physical Science Basis, Summary for Policymakers*, February 2007.

[6] Ibid.

[7] Ibid.

[8] Ibid.

[9] Ibid.

[10] Ibid.

[11] California Environmental Protection Agency, *Climate Action Team, Climate Action Team Report to Governor Schwarzenegger and the Legislature (Executive Summary)*, March 2006.

- Increase in the number of days conducive to ozone formation by 25 to 85 percent (depending on the future temperature scenario) in high ozone areas of Los Angeles and the San Joaquin Valley by the end of the 21st century;[12] and

- High potential for erosion of California's coastlines and seawater intrusion into the Delta and levee systems due to the rise in sea level.[13]

While there is broad agreement on the causative role of greenhouse gases to climate change, there is considerably less information or consensus on how climate change would affect any particular location, operation, or activity. The International Panel for Climate Change (IPCC) is a group established by the World Meteorological Organization and United Nations Environment Programmed in 1988. The role of the IPCC is to assess on a comprehensive, objective, open, and transparent basis the scientific, technical, and socioeconomic information relative to understanding the scientific basis of risk from human induced climate change, its potential impacts and options for adaptation and mitigation. The IPCC has published numerous reports on potential impacts of climate change to the human environment. These reports provide a comprehensive and up-to-date assessment on the current state of knowledge on climate change. Despite the extensive peer review of reports and literature on the impacts of global climate change, the IPCC notes the fact that there is little consensus as to the ultimate impact of human interference with the climate system and its causal connection to global warming trends. Accordingly, the ultimate impact of human activities upon global climate change and the resulting environmental impacts from global climate change are less than certain.

Table AQ-2, *Estimated Carbon Dioxide Emissions*, estimates the CO_2 emissions for the proposed Project. These emission estimates are based on construction activities and energy usage during operations. Currently, there is no industry-wide accepted method for quantifying greenhouse gases from development projects.

Table AQ-2
Estimated Carbon Dioxide Emissions

Project	CO_2 (tons/year)
Construction Emissions[1]	
2009	218.50
2010	362.54
Total Construction Emissions	**581.04**
Operational Emissions	
Energy[2]	281.78
Total Emissions[3]	***862.82***

Notes:
1. Emissions calculated using the URBEMIS 2007 computer model.
2. Energy was calculated based on an emissions factor of 0.772 pounds of CO_2 per kilowatt-hour, as provided by the U.S. Energy Information Administration, Domestic Electricity Emissions Factors 1999-2002, October 2007.
3. The Project is not expected to result in the emissions of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), or sulfur hexafluoride (SF_6), the other gases identified as greenhouse gases in Assembly Bill 32.

[12] Ibid.

[13] Ibid.

The proposed Project would include one (1) 2,000 ton chiller with pumps, one (1) 2.7-million gallon TES Tank along with TES pumps and two (2) cell cooling towers, and one (1) 50,000 pound/hour boiler with economizer and Low NO_x burner. Energy consumption emissions are based on emissions factors for electricity provided by the Energy Information Administration.[14] Increasing the Project's energy efficiency would reduce overall energy consumption, thereby reducing associated greenhouse gas emissions. The Project would incorporate the following Project design features to maximize energy efficiency and reduce greenhouse gas emissions:

- Variable frequency drives installed on all cooling tower fans, air-handling units, primary chilled water pumps, thermal energy storage charge pumps, and makeup water pumps. Equipment design selection enables normal operation mode to be at reduced fan speed;
- Chillers would be selected for super high efficiency rating;
- Premium efficiency would be specified for all motors (greater than approximately 10 horsepower); and
- Transformer efficiency levels would be guaranteed to meet or exceed the efficiency levels for liquid filled transformers as described in the National Electrical Manufacturers Association (NEMA) TP-1 Energy-Efficiency Tables.

Table AQ-3, *Applicable Global Climate Change Strategies*, provides a list of recommended measures and strategies provided by CARB and the California Climate Action Team (CCAT) to help reduce global climate impacts and assess a project's consistency with balancing the State's objectives of meeting the AB 32 target emissions limits. Table AQ-3 provides an analysis of the Project's conformance with the applicable greenhouse gas reduction strategies.

Table AQ-3
Applicable Global Climate Change Strategies

Greenhouse Gas Reduction Strategies	Project Conformance
Hydrofluorocarbon Reduction. 1) Ban retail sale of HFC in small cans; 2) Require that only low GWP refrigerants be used in new vehicular systems; 3) Adopt specifications for new commercial refrigeration; 4) Add refrigerant leak-tightness to the pass criteria for vehicular inspection and maintenance programs; 5) Enforce federal ban on releasing HFCs.	**Compliant**: The Project would not involve can sales, or vehicular development, inspection, or maintenance. Additionally, implementation of Strategy 5 is the responsibility of CARB and the EPA. Therefore, Strategies 1, 2, 4, and 5 are not applicable to the proposed Project. Regarding Strategy 3, proposed infrastructure Item No. 9 involves installation of a new chiller, which would meet all relevant State and federal specifications.
Appliance Energy Efficiency Use. Use of energy efficient appliances (i.e., washer/dryers, refrigerators, stoves, etc.)	**Compliant**: There are no appliances associated with the proposed Project. The infrastructure upgrades (i.e. Item Nos. 9 and 10) would replace the current equipment with more efficient equipment.
Water Use Efficiency Features. To increase water use efficiency include use of both potable and non-potable water to the maximum extent practicable and use of low flow appliances (i.e., toilets, shower heads, washing machines, etc).	**Compliant**: The Project would not create a demand for either potable or non-potable water; therefore, the strategy is not applicable. In general, the proposed infrastructure improvements would improve the capacity and distribution capability of the existing campus utilities. Finally, there are no appliances involved.

Notes:
1. California Environmental Protection Agency, C*limate Action Team Report to Governor Schwarzenegger and the Legislature*, March 2006.

[14] Energy Information Administration, Updated State-and Regional-level Greenhouse Gas Emission Factors for Electricity, March 2002.

Based on an investigation of compliance with local air quality thresholds and resultant future long-term operational impacts, the proposed Project would still have the potential to result in greenhouse gas emissions and global climate change. However, there is significant uncertainty involved in predicting the extent to which the Project operations would affect greenhouse gas emissions and global climate change.

As the issue of global climate change is cumulative in nature, a project-specific finding is not appropriate. Due to the scale of the Project, as well as the fact that it does not exceed any of the SCAQMD thresholds, a less than significant impact would occur in this regard.

University of California (UC) Policy on Sustainable Practices

The University of California (UC) has adopted a Policy on Sustainable Practices (March 22, 2007), which would further minimize impacts associated with global climate change. The University is committed to stewardship of the environment and to reducing the University's dependence on non-renewable energy sources. With this commitment in mind, the University regularly reviews initiatives and best practices and shares successes by augmenting the existing University guidelines. The current guidelines recommend that the University operations:

- Incorporate the principles of energy efficiency and sustainability in all capital projects, renovation projects, operations and maintenance within budgetary constraints and programmatic requirements.
- Minimize the use of non-renewable energy sources on behalf of the University's built environment by creating a portfolio approach to energy use, including the use of local renewable energy and purchase of green power from the grid as well as conservation measures that reduce energy consumption.
- Incorporate alternative means of transportation to/from and within the campus to improve the quality of life on campus and in the surrounding community. The campuses will continue their strong commitment to provide affordable on-campus housing, in order to reduce the volume of commutes to and from campus. These housing goals are detailed in the campuses' Long Range Development Plans.
- Track, report and minimize greenhouse gas emissions on behalf of University operations
- Minimize the amount of University generated waste sent to landfill.
- Utilize the University's purchasing power to meet its sustainability objectives.

AIR QUALITY - ***Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:***	**Potentially Significant Impact**	**Less Than Significant With Project-Level Mitigation Incorporated**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant Impact**	**No Impact**
d. Expose sensitive receptors to substantial pollutant concentrations?				✘	

DISCUSSION

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 sensitive receptors near the proposed infrastructure sites are the nearest occupied instructional uses. To identify impacts to sensitive receptors, the SCAQMD recommends addressing localized significance thresholds for construction and operations impacts, as well as a carbon monoxide hot-spots analysis (refer to Response 6.5(b) for a discussion of CO Hotspots).

Localized Significance Thresholds (LST)

The estimated grading activities would be approximately 0.5 acres per day. Therefore, a Localized Significance Thresholds analysis was performed. Due to their proximity, the surrounding sensitive land uses (i.e., occupied instructional uses) may be potentially affected by air pollutant emissions generated during construction activities. Since the nearest sensitive receptor would be located approximately 50 feet away, the localized significance threshold value of 500 meters was utilized as a threshold.

Localized Construction Emissions

Table AQ-4, *Summary of Localized Significance of Construction Emissions*, shows the construction-related emissions for NO_X, CO, PM_{10}, and $PM_{2.5}$ compared to the localized significance thresholds for Source Receptor Area 23, Metropolitan Riverside County. As shown in Table AQ-4, construction emissions would not exceed the localized significance thresholds. Therefore, localized significance construction impacts would be less than significant.

Table AQ-4
Summary of Localized Significance of Construction Emissions

Construction Phase	Pollutant (pounds/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
2010 Total Emissions	35.56	49.06	2.72	2.39
Localized Significance Threshold	365	1,078	4	8
Thresholds Exceeded?	***No***	***No***	***No***	***No***
2009 Total Emissions	32.23	16.83	3.87	1.93
Localized Significance Threshold	365	1,078	4	8
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 anticipated daily acreage disturbance (approximately 0.50 acres) and the source receptor area (SRA 23).

AIR QUALITY - *Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
e. Create objectionable odors affecting a substantial number of people?				✘	

DISCUSSION

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 and cease upon Project completion. Any impacts to existing adjacent land uses would be short-term, as previously noted, and are considered less than significant.

6.4 BIOLOGICAL RESOURCES

BACKGROUND

Potential impacts to biological resources as a result of full implementation of the 2005 LRDP were evaluated in Section 4.4 (Biological Resources) of the 2005 LRDP EIR (Pages 4.4-1 through 4.4-43). The proposed Project is within the scope of the analysis presented in the 2005 LRDP EIR.

PSs, PPs, and MMs regarding biological resources adopted with the 2005 LRDP EIR that are applicable to the proposed Project are listed following each discussion below. (Refer to Appendix 11.1 for the full text.)

Would the project:	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				✘	

DISCUSSION

According to the LRDP EIR, campus plant and wildlife resources can be generally described by four biological resource "types": *natural* areas; *naturalistic* areas; *landscaped* areas; and

agricultural areas. Figure 4.4-1, *Existing Campus Biological Resources*, of the LRDP EIR, illustrates the Campus' existing biological resource types and indicates that most of the proposed improvements would occur outside of these resource areas, within previously developed/disturbed areas or within existing buildings, therefore, would not impact biological resources.

As indicated in Figure 4.4-1, the eastern extreme of the proposed domestic water line (i.e., Item No. 3) would traverse a Naturalistic Open Space area. However, because this pipeline is proposed within the North Campus Drive ROW, no impact to biological resources would occur in this regard. Additionally, construction staging for this improvement would occur along and adjacent to the trench within the North Campus Drive ROW.

Although not within a designated biological resource area, Item No. 9 (i.e., TES Tank #3 and pump building) would be located adjacent to a Natural Habitats area that exists to the south; refer to LRDP EIR Figure 4.4-1. Natural Habitats areas are undeveloped open space and are comprised of native and naturally occurring plant species. This association refers to the southeast hills on the East Campus, where the primary plant community is coastal sage scrub. The relatively large stand of undisturbed coastal sage scrub mixed with annual grasslands in this area may provide habitat for native wildlife, including sensitive species such as the orange-throated whiptail (*Cnemidophorus hyperythrus*), burrowing owl (*Athene cunicularia*), California gnatcatcher (*Polioptila californica californica*), and Stephens' kangaroo rat (*Dipodomys stephensi*). Other sensitive species that may occur in this area are described in the LRDP EIR and listed in LRDP EIR Table 4.4-1.

Due to the proposed tank site's proximity to the Natural Habitats area that exists to the south, and in order to avoid potential adverse impacts to candidate, sensitive, or special-status plant and wildlife species (as identified in LRDP EIR Table 4.4-1), design of this improvement has been guided by PS Open Space 1, 2, and 3. In particular, PS Open Space 2 requires the sensitive siting of utility projects within the LRDP land use designated Open Space Reserve. As previously noted, TES Tank #3 has been sensitively sited in that it is proposed in the lower slopes of the southeast hills and would be recessed into the hillside (with only the upper portion visible). Continued implementation of PP 4.4-1(b) further protects and reduces potential disturbance to the adjacent Natural Habitats area.

The following LRDP PSs and PPs are incorporated into the proposed Project and as discussed above, would ensure that potential impacts to sensitive biological resources would be less than significant.

PS Open Space 1: Protect the steep and natural hillsides on the southeast campus area, designated as a Natural Open Space Reserve, to protect wildlife habitat, provide a visual backdrop to the campus, and protect against erosion.

PS Open Space 2: Within the Natural Open Space Reserve, no major facilities are allowed (except for sensitively sited utility projects), vehicular and pedestrian access will be limited, and native plant materials will be used where needed for erosion, screening, and restoration.

PS Open Space 3: In Naturalistic Open Space areas, where arroyos and other natural features exist, preserve wherever feasible existing landforms, native plant materials, and trees. Where appropriate, restore habitat value.

PS Conservation 1: Protect natural resources, including native habitat; remnant arroyos' and mature trees, identified as in good health as determined by a qualified arborist, to the extent feasible.

PP 4.4-1(b): To reduce disturbance of Natural and Naturalistic Open Space areas:

(i) Unnecessary driving in sensitive or otherwise undisturbed areas shall be avoided. New roads or construction access roads would not be created where adequate access already exists.
(ii) Removal of native shrub or brush shall be avoided, except where necessary.
(iii) Drainages shall be avoided, except where required for construction. Limit activity to crossing drainages rather than using the lengths of drainage courses for access.
(iv) Excess fill or construction waste shall not be dumped in washes.
(v) Vehicles or other equipment shall not be parking in washed or other drainages.
(vi) Overwatering shall be avoided in washes and other drainages.
(vii) Wildlife including species such as fox, coyote, snakes, etc, shall not be harassed. Harassment includes shooting, throwing rocks, etc.

BIOLOGICAL RESOURCES - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?				✘	

DISCUSSION

LRDP EIR Figure 4.4-1, *Existing Campus Biological Resources*, and Figure 4.8-1, *Arroyos Within the UC Riverside Campus*, illustrate the Campus' major drainages and arroyos, respectively. As indicated in Figures 4.4-1 and 4.8-1, none of the proposed infrastructure improvements would traverse a major drainage or arroyo. Therefore, Project implementation would not have an adverse effect on any riparian habitat.

As concluded above, Item No. 9 (i.e., TES Tank #3 and pump building) would be located adjacent to a Natural Habitats area and within the LRDP Land Use designation of Open Space Reserve. The Natural Habitats association refers to the southeast hills, which generally corresponds to the only area of the campus that is designated critical habitat for the California gnatcatcher and contains the vegetation community (e.g., coastal sage scrub) that this species is known to be associated with.

Proposed TES Tank #3 and pump building would be located adjacent to a Natural Habitats area, thus could result in impacts to the coastal sage scrub vegetation community. As discussed above, design of the this improvement has been guided by PS Open Space 1, 2, and

3 in order to protect sensitive natural communities. Continued implementation of 4.4-1(b) further protects and reduces potential disturbance to the adjacent Natural Habitats area.

The following LRDP PSs and PPs are incorporated into the proposed Project and as discussed above, would ensure that potential impacts to the coastal sage scrub natural community would be less than significant.

PS Open Space 1: Protect the steep and natural hillsides on the southeast campus area, designated as a Natural Open Space Reserve, to protect wildlife habitat, provide a visual backdrop to the campus, and protect against erosion.

PS Open Space 2: Within the Natural Open Space Reserve, no major facilities are allowed (except for sensitively sited utility projects), vehicular and pedestrian access will be limited, and native plant materials will be used where needed for erosion, screening, and restoration.

PS Open Space 3: In Naturalistic Open Space areas, where arroyos and other natural features exist, preserve wherever feasible existing landforms, native plant materials, and trees. Where appropriate, restore habitat value.

PS Conservation 1: Protect natural resources, including native habitat; remnant arroyos' and mature trees, identified as in good health as determined by a qualified arborist, to the extent feasible.

PP 4.4-1(b) To reduce disturbance of Natural and Naturalistic Open Space areas:

(i) Unnecessary driving in sensitive or otherwise undisturbed areas shall be avoided. New roads or construction access roads would not be created where adequate access already exists.
(ii) Removal of native shrub or brush shall be avoided, except where necessary.
(iii) Drainages shall be avoided, except where required for construction. Limit activity to crossing drainages rather than using the lengths of drainage courses for access.
(iv) Excess fill or construction waste shall not be dumped in washes.
(v) Vehicles or other equipment shall not be parking in washed or other drainages.
(vi) Overwatering shall be avoided in washes and other drainages.
(vii) Wildlife including species such as fox, coyote, snakes, etc, shall not be harassed. Harassment includes shooting, throwing rocks, etc.

BIOLOGICAL RESOURCES - *Would the project:*	**Potentially Significant Impact**	**Less Than Significant With Project-Level Mitigation Incorporated**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant Impact**	**No Impact**
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?					✘

DISCUSSION

As indicated in Figures 4.4-1 and 4.8-1, none of the proposed infrastructure improvements would traverse a major drainage or arroyo. Therefore, Project implementation would not have an adverse effect on Federally protected wetlands.

BIOLOGICAL RESOURCES - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	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?					✘

DISCUSSION

Figure 4.4-2 of the LRDP EIR (UCR Area Wildlife Corridor) illustrates the wildlife corridor that existing in UCR's vicinity. According to Figure 4.4-2, the proposed infrastructure improvements would not be located within a wildlife corridor. Therefore, Project implementation would not interfere with the movement of any wildlife species or a migratory wildlife corridor.

BIOLOGICAL RESOURCES - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
e. Conflict with any local applicable policies protecting biological resources?				✘	

DISCUSSION

As a State entity, UC is not subject to City of Riverside's or County of Riverside's plans, policies, and regulations. The proposed infrastructure improvements would be subject to compliance with the LRDP's Planning Strategies (i.e., PS Open Space 1, PS Open Space 2, and PS Open Space 3), and PP 4.4-1(b), that are intended to promote preservation of existing habitat, natural features, and mature trees.

BIOLOGICAL RESOURCES - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan?					✘

DISCUSSION

The Western Riverside County MSHCP boundaries encompass approximately 1.26 million acres, including a portion of the UCR campus. Conservation target areas within the plan include areas surrounding the campus. LRDP EIR Figure 4.4-3, *MSHCP Subunit Cells Within UCR*, illustrates the portion of the campus that is within the boundaries of the MSHCP. Although sections of MSHCP Cells include portions of the campus, the plan does not identify any portion of UCR for conservation. The LRDP EIR concluded implementation of the LRDP would not conflict with the MSHCP. Similarly, the proposed infrastructure improvements would not conflict with the MSHCP and no impact would occur in this regard.

6.5 CULTURAL RESOURCES

BACKGROUND

Potential impacts to cultural resources as a result of full implementation of the 2005 LRDP were evaluated in Section 4.5 (Cultural Resources) of the 2005 LRDP EIR (Pages 4.5-1 through 4.5-28). The proposed Project is within the scope of the analysis presented in the 2005 LRDP EIR.

PSs, PPs, and MMs regarding cultural resources adopted with the 2005 LRDP EIR that are applicable to the proposed Project are listed following each discussion portion below. (Refer to Appendix 11.1 for the full text.)

CULTURAL RESOURCES - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?					✘

DISCUSSION

With the exception of Item No. 10, which is proposed within the Steam Plant/Central Utility Plant Building, none of the proposed infrastructure improvements would have the potential to impact potentially historic buildings; refer to Figure 4.5-1 of the LRDP EIR (Potentially Historic Structures on the UCR Campus). The Steam Plant/Central Utility Plant Building is identified as potentially historic. The Steam Plant/Central Utility Plant Building, which was built in 1949, "was considered the first building to be completed on and for the new Riverside campus."[15] Although this structure is of sufficient age to be considered potentially historic during the 2005 LRDP planning period, age alone would not necessarily render it historic. According to the LRDP EIR, proposed modifications to any potentially historic structures would require additional analysis in order to determine whether these structures meet any of the criteria for the NRHP or CRHR.

Item No. 10 involves installation of Boiler #5 adjacent to existing Boiler #4 and replacement deaerators with cross connections within the existing Steam Plant/Central Utility Plant Building.

[15] University of California, Riverside, *University of California Riverside 2005 Long Range Development Plan Final Environmental Impact Report Volume I Draft EIR*, Page 4.5-10.

These proposed improvements would be limited to the interior of the structure, which is currently utilized for steam supply and condensate return systems. Further, no modifications to the internal structure of the building are proposed. Additionally, no modifications that would alter the structure's character-defining features or setting are proposed. Therefore, implementation of the proposed Project would not cause a substantial adverse change in the significance of a historical resource (i.e., Steam Plant/Central Utility Plant Building).

CULTURAL RESOURCES – *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?				✘	

DISCUSSION

The East Campus' academic core and its perimeter have been developed with academic and support uses, and large areas of grading and fill placement underlie these developed areas. Substantial ground disturbance has, therefore, occurred in these areas, and surface evidence of archaeological resources is not likely to be encountered. Further, no archaeological materials have been uncovered during excavation or grading associated with development within the East Campus' core. With the exception of Item No. 9 (in part, i.e., TES Tank #3 and pump building), the proposed infrastructure improvements would be implemented in the East Campus' academic core or around its perimeter. Because these improvement sites are not located in an area of the campus considered archaeologically sensitive, implementation of these improvements would result in a less than significant impact to an archaeological resource.

The California Historical Resource Information System lists two archaeological sites that have been recorded within the UCR campus, one being located on a slope in the southeast hills (i.e., Site CA-RIV-495). This prehistoric site was first identified in 1971, and its presence was confirmed in 1990. Typical of prehistoric sites occurring in the surrounding area, Site CA-RIV-495 was described as a single grinding slick on a bedrock outcrop, with no associated artifacts. Moreover, PP 4.5-3 requires a surface field survey, if construction occurs within the southeast hills. TES Tank #3 and the pump building are proposed in the lower slopes of the southeast hills. Therefore, the proposed tank site is located in an archaeologically sensitive area of the campus and requires a surface field survey in compliance with PP 4.5-3.

A Phase I Cultural Resources Investigation[16] was conducted as part of the TES Tank #2 project; refer to Appendix 11.4, *Cultural Resources Data*. The site of proposed TES Tank #3 and the pump building is located adjacent and west of existing TES Tank #2. Therefore, the findings of the TES Tank #2 investigation are considered relevant to proposed TES Tank #3 and the pump building. The Phase I investigation concluded there was no evidence of historic or prehistoric cultural resources. Open spaces were visually inspected with negative results. The negative findings are presumed to be a consistent conclusion for the campus as a whole and no further surface surveys were recommended.[17] Because of the possibility that additional resources may

[16] McKenna et al., *A Phase I Cultural Resources Investigation of the Proposed Chiller Plant, Tank, and Pipeline System on the University of California Riverside Campus*, November 15, 2001.

[17] Ibid., Page 9.

be present in a buried context, McKenna et al. recommended that the excavation for the project be monitored to insure avoidance of impacts to potentially significant cultural and/or paleontological resources.

A monitoring program[18] was conducted January through April 2002; refer to Appendix 11.4. In addition to monitoring the excavations for TES Tank #2, the peripheral areas of excavation were monitored. The site of proposed TES Tank #3 and the pump building is located within these peripheral areas of excavation. Thus, the proposed TES Tank #3 and pump building site was monitored, as part of the TES Tank #2 monitoring program, thereby satisfying the requirements of PP 4.5-3. No evidence of cultural remains was encountered, as a result of the monitoring program, negating the need to inventory or curate any materials. As of April 2002, the property is considered clear of any archaeological or paleontological remains. Therefore, proposed TES Tank #3 and the pump building would not cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5, and this impact would be less than significant.

5. CULTURAL RESOURCES - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				✘	

DISCUSSION

The rocks and sediment underlying the campus are considered unlikely to be fossil bearing.[19] The campus' academic core and its perimeter have been developed with academic and support uses, and large areas of grading and fill placement underlie these developed areas. Substantial ground disturbance has, therefore, occurred. With the exception of Item No. 9 (in part, i.e., TES Tank #3 and pump building), the proposed infrastructure improvements would be implemented in the East Campus' academic core or around its perimeter. Due to the geologic materials that underlie the campus and the ground disturbance that has occurred within and adjacent to the academic core, the likelihood of encountering paleontological resources is low. Similarly, the likelihood of encountering paleontological resources at the TES Tank #3 site is low, since the site was disturbed, as a part of excavation for existing TES Tank #2. As discussed in Response 6.5(b) above, the property is considered clear of any archaeological or paleontological remains. Therefore, the proposed Project would result in less than significant impacts to paleontological resources.

[18] Contained in two reports: McKenna et al., *Completion of the Archaeological/Paleontological Monitoring Program at the "TES" Site*, April 22, 2002; and McKenna et al., *TES Expansion & Satellite Plant Monitoring Program* October 23, 2002.

[19] University of California, Riverside, *University of California Riverside 2005 Long Range Development Plan Final Environmental Impact Report Volume I Draft EIR*, Page 4.5-3.

5. CULTURAL RESOURCES - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
d. Disturb any human remains, including those interred outside of formal cemeteries?				✘	

DISCUSSION

As discussed previously, substantial ground disturbance has occurred in the campus' academic core and its perimeter, where the proposed infrastructure improvements would be implemented (excluding TES Tank #3 and the pump building). Similarly, the likelihood of encountering human remains at the TES Tank #3 site is low, since the site was disturbed, as a part of excavation for existing TES Tank #2. As discussed in Response 6.5(b) above, the property is considered clear of any archaeological or paleontological remains. Due to the ground disturbance that has occurred within and adjacent to the academic core and the TES Tank #3 site, the likelihood of encountering human remains is low. No conditions exist that suggest human remains are likely to be found on the campus. Therefore, it is not anticipated that human remains, including those interred outside of formal cemeteries, would be encountered during earth removal or disturbance activities. Impacts involving potential disturbance to human remains are considered less than significant.

6.6 GEOLOGY AND SOILS

BACKGROUND

Potential impacts to geology and soils as a result of full implementation of the 2005 LRDP were evaluated in Section 4.6 (Geology and Soils) of the 2005 LRDP EIR (Pages 4.6-1 through 4.6-19). The proposed Project is within the scope of the analysis presented in the 2005 LRDP EIR.

PSs, PPs, and MMs regarding geology and soils adopted with the 2005 LRDP EIR that are applicable to the proposed Project are listed following each discussion below. (Refer to Appendix 11.1 for the full text.)

GEOLOGY AND SOILS – *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
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.					✘

DISCUSSION

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 prohibits the construction of buildings used for human occupancy on active or potentially active surface faults. No portion of the campus is included within an Alquist-Priolo Earthquake Fault Zone designated by the State of California, and no known active or potentially active faults traverse the campus; refer to LRDP EIR Figure 4.6-2, *Regional Fault Map*. Further, there is no evidence of any known active or potentially active faults on or immediately adjacent to the UCR campus. The closest known active fault to the campus is the San Jacinto Fault, located approximately six miles to the northeast. One inactive fault, known as the Box Springs Fault, is buried underneath Pleistocene-age alluvium near the northeast corner of the campus. This fault is associated with springs found along the southwest margin of the Box Springs Mountains. Ground rupture occurrences are generally limited to the location of faults, and no active or potentially active faults are known to occur on the campus. Therefore, Project implementation would not expose people or structures to substantial adverse effects involving rupture of a known earthquake fault. A less than significant impact would occur in this regard.

GEOLOGY AND SOILS – *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
ii) Strong seismic ground shaking?		✘			

DISCUSSION

LRDP EIR Figure 4.6-2 illustrates the locations of the region's faults. The campus may be affected by strong ground shaking from these or any of dozens of other regionally active or potentially active faults in southern California. According to the LRDP EIR, development of additional facilities and structures on the UCR campus would expose people and/or structures to potentially substantial adverse effects resulting from seismic ground shaking. The analysis concluded that with implementation of existing campus PP, implementation of the LRDP would not expose people and/or structures to potentially substantial adverse effects resulting from strong seismic groundshaking, and this impact would be less than significant.

A site-specific Geotechnical Investigation[20] was conducted, as part of the TES Tank #2 project; refer to Appendix 11.5, *Geological Data*. The site of proposed TES Tank #3 and the pump building is located adjacent and west of existing TES Tank #2. The findings of the TES Tank #2 Geotechnical Investigation are considered relevant to proposed TES Tank #3 and the pump building due to the proximity of the sites. The Geotechnical Investigation concluded the San Jacinto fault, which is located approximately five miles to the northeast, is the closest known active fault to site. The San Jacinto fault is considered to be the most important fault to the site with respect to the hazard of seismic shaking. A probabilistic analysis of seismic hazard was conducted and the resultant maximum ground acceleration at the site was computed. The

[20] C. H. J., Incorporated, *Geotechnical Investigation Thermal Energy Storage Expansion and Satellite Plant University of California Riverside*, August 31, 2001.

analysis indicates that a peak ground acceleration of 0.52g has a ten percent probability of exceedance in 50 years. This corresponds to the Design Basis Earthquake. C.H.J. concluded, on the basis of their field investigations, that the proposed development is feasible from a geotechnical standpoint, provided the recommendations contained in the Geotechnical Investigation Report are implemented during design, grading, and construction.

A subsurface investigation[21] that encompassed both the TES Tank #2 and Tank #3 sites was conducted; refer to Appendix 11.5. The subsurface investigation provided the subsurface data needed for planning the proposed tanks.

Additionally, a ground motions analysis[22] was conducted, as part of the TES Tank #2 project; refer to Appendix 11.5. Due to the proximity of the sites, the findings of the TES Tank #2 ground motions analysis are considered relevant to proposed TES Tank #3 and the pump building. The scope of work included an evaluation of ground motions at the site from a probabilistic seismic hazard analysis. Ground motions were developed for the tank site using a probabilistic approach. The probabilistic seismic hazard analysis follows the standard approach, but has been expanded to more fully treat both the randomness and scientific uncertainty.

The proposed Project could be subject to seismically induced groundshaking, which could result in damage to the infrastructure improvements. The LRDP EIR outlines various existing campus PP in order to mitigate potential impacts associated with seismic shaking. PP 4.6-1(a) requires that a site-specific geotechnical study be conducted during project-specific building design to assess seismic, geological, soil, and groundwater conditions at the construction site and develop recommendations to prevent or abate hazards. The infrastructure improvements would involve underground pipelines, ductbanks, and conduits/circuits, or facility upgrades within existing buildings (with the exception of TES Tank #3 and the pump building). Additionally, with the exception of TES Tank #3 and the pump building, the proposed infrastructure improvements would be implemented in the East Campus' academic core and its perimeter, which has been largely developed. Therefore, site-specific geotechnical studies would not be warranted for these improvements. TES Tank #3 and the pump building are proposed on an unimproved site, in the lower slopes of the southeast hills. Site-specific geotechnical studies were conducted in compliance with PP 4.6-1(a), as described above.

All proposed infrastructure improvements would be subject to compliance with PP 4.6.1(b), which requires continued implementation of the campus' seismic upgrade program, and PP 4.6.1(c), which requires that the campus continue to fully comply with the University of California's Policy for Seismic Safety, as amended. Compliance with this policy would ensure that design and construction of the proposed infrastructure, at a minimum, would comply with seismic provisions of the California Code of Regulations, Title 24, California Administrative Code, the California State Building Code, and local seismic requirements, whichever requirements are most stringent.

With implementation of the following existing campus PPs, as well as the recommended Project-level mitigation requiring compliance with the Geotechnical Investigation,

[21] C. H. J., Incorporated, *Subsurface Investigation Proposed Thermal Energy Storage Tanks University of California Riverside*, November 8, 2001.

[22] C. H. J., Incorporated, *Ground Motions Thermal Energy Storage Expansion UC Riverside Campus*, November 28, 2001.

implementation of the proposed infrastructure improvements would not expose people and/or structures to potential substantial adverse effects from strong seismic groundshaking and this potential impact is considered less than significant.

PP 4.6-1(b): The campus shall continue to implement its current seismic upgrade program.

PP 4.6-1(c): The campus will continue to fully comply with the University of California's Policy for Seismic Safety, as amended. The intent of this policy is to ensure that the design and construction of new buildings and other facilities shall, at a minimum, comply with seismic provisions of California Code of Regulations, Title 24, California Administrative Code, the California State Building Code, or local seismic requirements, whichever requirements are most stringent.

GEO-1 Prior to UCR approval/acceptance of Construction Drawings and Specifications, the design Structural Engineer and/or Civil Engineer shall certify that the Project was designed to comply with each of the recommendations detailed in the Geotechnical Investigation Thermal Energy Storage Expansion and Satellite Plant University of California Riverside (C. H. J., Incorporated, August 31, 2001), Subsurface Investigation Proposed Thermal Energy Storage Tanks University of California Riverside (C. H. J., Incorporated, November 8, 2001), and the Ground Motions Thermal Energy Storage Expansion UC Riverside Campus, (C. H. J., Incorporated, November 28, 2001), and any other such measure(s) as UCR deems necessary to adequately mitigate Project impacts.

6. GEOLOGY AND SOILS – *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
iii) Seismic-related ground failure, including liquefaction?		✘			

DISCUSSION

As noted above, the Geotechnical Investigation conducted, as part of the TES Tank #2 project is considered relevant to proposed TES Tank #3 and the pump building due to the proximity of the sites. The Geotechnical Investigation evaluated groundwater and liquefaction and concluded the site is underlain by crystalline bedrock at a relatively shallow depth, which is considered essentially non-water bearing. However, the bedrock is overlain by more permeable soils, a condition conducive to localized perching of water at the soil/bedrock interface. Application of landscape water on site can be expected to aggravate this condition. Given the geomorphology of the site, it is likely that the soil/bedrock interface is inclined too steeply to perch significant amounts of water. However, the Geotechnical Investigation recommends that landscape water application be limited to the amount actually necessary for sustained plant growth.

Compliance with Mitigation Measure GEO-1, which requires compliance with the Geotechnical Investigation's recommendations, would ensure that implementation of the proposed infrastructure improvements would not expose people and/or structures to potential substantial adverse effects from perched groundwater and this potential impact is considered less than significant.

Liquefaction is a process in which strong ground shaking causes saturated soils to loose their strength and behave as a fluid. Ground failure associated with liquefaction can result in severe damage to structures. The geologic conditions for increased susceptibility to liquefaction are: 1) shallow groundwater (less than 50 feet in depth); 2) presence of unconsolidated sandy alluvium (typically Halocene in age); and 3) strong ground shaking. All three of these conditions must be present for liquefaction to occur. Because only one of the three geologic conditions for increased liquefaction susceptibility (strong ground shaking) is expected to exist on the site, liquefaction is not considered to be a potential hazard to the site.[23]

6. GEOLOGY AND SOILS – *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
iv) Landslides?		✘			

DISCUSSION

The geologic materials located on the campus render the risk for deep-seated landsliding to be very low, even on natural slopes. This is due to the sturdy nature of the alluvial materials and bedrock underlying the majority of the campus, which have no weak planar structures developed that could trigger a large deep-seated landslide. While deep-seated landsliding is unlikely to occur at the campus, surficial failure on natural slopes in the southeastern portion of the campus does pose a potential hazard.

With the exception of TES Tank #3 and the pump building, the proposed infrastructure improvements would be implemented in the East Campus' academic core and its perimeter, which have a relatively flat to gently sloping topography. No landslides are present or would be anticipated at these improvement sites.

The Geotechnical Investigation conducted, as part of the TES Tank #2 project evaluated slope stability. The findings of the TES Tank #2 Geotechnical Investigation are considered relevant to proposed TES Tank #3 and the pump building due to the proximity of the sites. Based on geomorphology observed during the geologic field reconnaissance and the aerial photographs reviewed, the potential for existing landsliding is considered to be very low.[24] However, according to the Geotechnical Investigation, geologic in-grading observations should be conducted by the Engineering Geologist.

[23] C. H. J., Incorporated, *Geotechnical Investigation Thermal Energy Storage Expansion and Satellite Plant University of California Riverside*, August 31, 2001, Page 13.

[24] Ibid., Page 14.

Compliance with Mitigation Measure GEO-1, which requires compliance with the Geotechnical Investigation's recommendations, would ensure that Project implementation would not expose people or structures to potential substantial adverse effects involving landslides. Refer to Response 6.6(c) for a discussion of surficial failure on natural slopes in the southeastern portion of the campus.

GEOLOGY AND SOILS – *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
b. Result in substantial soil erosion or the loss of topsoil?				✘	

DISCUSSION

Soil erosion is the process by which soil particles are removed from the land surface by wind, water, and/or gravity. Exposed soil after clearing, grading, or excavation is easily eroded by wind or water. According to the LRDP EIR, implementation of the LRDP would result in the development of new buildings and facilities, which could result in substantial soil erosion and the loss of topsoil. The analysis concluded that with implementation of the relevant LRDP PP and PS, this impact would be less than significant.

Activities during the construction phase of the proposed improvements would increase the potential for erosion due to the disturbance of surface soils. More specifically, development of new facilities or redevelopment of existing building sites would involve site clearance, trenching, grading, excavation, and other earthmoving activities, which would subject exposed soils to short-term erosion by wind and water. The erosion hazards from the soil series that generally underlie the campus (Monserate, Arlington, Hanford, and Buren) range from slight to moderate on the West Campus, and from slight to moderate on most of the East Campus, except for areas in the southeast hills, where the erosion potential is moderate to high. All construction activities would be required to comply with Chapter 29 of the CBC, which regulates excavation activities and the construction of foundations and retaining walls, and Chapter 70 of the CBC, which regulates grading activities, including drainage and erosion control. Compliance with LRDP PS Conservation 2 through facility siting and planning has minimized site disturbance and reduced erosion and sedimentation impacts. Continued implementation of PP 4.6-2(a), which requires continued compliance with SCAQMD Rule 403—Fugitive Dust during construction, would stabilize soils and prevent erosion through the reduction of dust generation (refer also to Section 6.3, *Air Quality*). Additionally, continued compliance with PP 4.6-2(b), which involves the Statewide General Construction Activity Stormwater Permit, would ensure Best Management Practices are implemented during project construction (refer also to Section 6.8, *Hydrology and Water Quality*).

With continued implementation of existing campus PPs, described below and incorporated as part of the proposed Project, Project implementation would result in less than significant impacts regarding soil erosion or the loss of topsoil.

PS Conservation 2: Site buildings and plan site development to minimize site disturbance, reduce erosion and sedimentation, reduce stormwater runoff, and maintain existing landscapes, including healthy mature trees whenever possible.

PP 4.6-2(a) The campus shall continue to implement dust control measures consistent with SCAQMD Rule 403—Fugitive Dust during the construction phases of new project development. The following actions are currently recommended to implement Rule 403 and have been quantified by the SCAQMD as being able to reduce dust generation between 30 and 85 percent depending on the source of the dust generation. The Campus shall implement these measures as necessary to reduce fugitive dust. Refer to PP 4.3-2(b) in Section 6.3*, Air Quality for the PP text in its entirety.*

PP 4.6-2(b): In compliance with National Pollution Discharge Elimination System (NPDES), the campus would continue to implement Best Management Practices, as identified in the UCR Stormwater Management Plan (UCR 2003).

GEOLOGY AND SOILS – *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	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?				✘	

DISCUSSION

According to the LRDP EIR, construction in areas underlain by soils of varying stability could subject people and structures to hazards associated with landsliding, lateral spreading, subsidence, liquefaction, collapse, or differential settlement. The analysis concluded that with implementation of relevant LRDP PP and PS, this impact would be less than significant.

The older alluvium found on most of the campus is typically consolidated in a medium dense to dense condition and is generally suitable to support structures. However, the younger alluvium material, found in the vicinity of University Arroyo, is generally sandy and porous with a high potential for hydroconsolidation and is generally not suitable for the support of structures. Because fill materials in many areas of the campus were deposited prior to the development of modern building codes, these materials exhibit great variability in their density and compressibility. As such, fill materials may not be suitable for the support of structures, and would need to be recompacted or removed. Another potential hazard involves rockfall during the event of a strong seismic shaking. Rounded outcrops resulting from weathering of the granitic bedrock can be found in abundant amounts on the bedrock hillside above East Campus Drive.

Construction in areas underlain by soils of varying stability could subject people and structures to hazards associated with landsliding, lateral spreading, subsidence, liquefaction, collapse, or differential settlement. However, the infrastructure improvements would involve underground pipelines, ductbanks, and conduits/circuits, or facility upgrades within existing buildings (with the exception of TES Tank #3 and the pump building). Additionally, with the exception of TES Tank #3 and the pump building, the proposed infrastructure improvements would be implemented in the East Campus' academic core and its perimeter, which has been largely developed. Therefore, site-specific geotechnical studies would not be warranted for these improvements.

TES Tank #3 and the pump building are proposed on an unimproved site, in the lower slopes of the southeast hills. Construction in this area could subject people and structures to hazards associated with landsliding, lateral spreading, subsidence, liquefaction, collapse, or differential settlement. As discussed in Response 6.6(a)(ii) above, site-specific geotechnical studies have been conducted, in order to mitigate potential for displacement caused by seismically induced shaking, fault/ground surface rupture, liquefaction, differential soil settlement, expansive and compressible soils, landsliding, or other earth movements or soil constraints. The proposed improvements would also be subject to the design and construction requirements of the CBC. Therefore, potential impacts involving unstable geologic units would be reduced to less than significant.

GEOLOGY AND SOILS – *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
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?				✘	

DISCUSSION

The soil series that comprise the eastern portion of campus include the Arlington, Hanford, Buren, and Monserate. The Buren series has a moderate to low shrink-swell potential. The Monserate soils are found on most of the northeastern portion of the campus, and shrink-swell potential is from low to moderate. Soils found at the southeastern portion of the campus, which have relatively steeper slopes than other parts of the campus, are predominately of the Cieneba and Vista series and have low shrink-swell characteristics. The Arlington and Hanford soils are primarily found on the relatively flat-sloped western portion of the campus and have a low shrink-swell characteristic. As most of the soils on the campus have low to moderate shrink-swell characteristics, the potential for water uptake after rainfall to cause soils to expand and damage facilities or building foundations is considered low.

The infrastructure improvements would involve underground pipelines, ductbanks, and conduits/circuits, or facility upgrades within existing buildings (with the exception of TES Tank #3 and the pump building), thus would not involve substantial risk from expansive soils. Additionally, the southeast portion of the campus, where TES Tank #3 and the pump building are proposed, has a low shrink-swell characteristic. Therefore, Project implementation would not create substantial risk to life or property due to expansive soils. Less than significant impacts would occur in this regard.

GEOLOGY AND SOILS – *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?					✘

DISCUSSION

The LRDP Initial Study determined that no effects associated with soils incapable of adequately supporting sewage systems would occur with the 2005 LRDP.

Item No. 4 involves installation of a sewer line in the North Campus. The proposed improvements do not involve the use of septic tanks or alternative wastewater disposal systems. Moreover, the City of Riverside provides sanitary sewer service to the UCR campus. Existing wastewater infrastructure is located throughout the East Campus. Therefore, no impact is anticipated in this regard.

6.7 HAZARDS AND HAZARDOUS MATERIALS

BACKGROUND

Potential impacts associated with hazards and hazardous materials as a result of full implementation of the 2005 LRDP were evaluated in Section 4.7 (Hazards and Hazardous Materials) of the 2005 LRDP EIR (Pages 4.7-1 through 4.7-44). The proposed Project is within the scope of the analysis presented in the 2005 LRDP EIR.

PSs, PPs, and MMs regarding hazards and hazardous materials adopted with the 2005 LRDP EIR that are applicable to the proposed Project are listed following each discussion below. (Refer to Appendix 11.1 for the full text.)

HAZARDS AND HAZARDOUS MATERIALS - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?				✘	

DISCUSSION

The proposed infrastructure improvements include underground pipelines, ductbanks, and conduits/circuits, and a TES tank/pump building that would not involve the routine transport, use, or disposal of hazardous materials. Item Nos. 9 and 10 include facility upgrades to existing buildings (i.e., Satellite Chiller Plant and Steam Plant/Central Utility Plant) where existing operations require the routine transport, use, and disposal of hazardous materials. These proposed improvements could result in an increase in the amount of hazardous materials that are used, stored, transported, and disposed. This increase was anticipated by the LRDP EIR, which anticipated that "Maintenance and Physical Plant" was an activity with a potential to handle or use hazardous materials, as follows:

> *Maintenance and Physical Plant—With an increase in on campus occupied space, expansion of maintenance and cleaning services will be required. This would increase the use, handling, storage, and disposal of products routinely used in building maintenance, some of which may contain hazardous materials.*

While not specifically noted, it is assumed, the anticipated maintenance activities included infrastructure facility maintenance, such as those that occur at the Steam Plant/Central Utility Plant and the Satellite Chiller Plant.

Continued operations at the Steam Plant/Central Utility Plant and the Satellite Chiller Plant would be subject to compliance with PP 4.7-1 related to the transport, use, storage, and disposal of hazardous materials, which would reduce potential impacts associated with hazardous materials to a less than significant level.

PP 4.7-1: The campus shall continue to implement the current (or equivalent) health and safety plans, programs, and practices related to the use, storage, disposal, or transportation of hazardous materials, including, but not necessarily limited to, the Business Plan, the Broadscope Radioactive Materials License, and the following programs: Biosafety, Emergency Management, Environmental Health, Hazardous Materials, Industrial Hygiene and Safety, Laboratory/Research Safety, Radiation Safety, and Integrated Waste Management. These programs may be subject to modification as more stringent standards are developed or if the programs are replaced by other programs that incorporate similar health and safety protection measures.

7. HAZARDS AND HAZARDOUS MATERIALS - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
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?				✘	

DISCUSSION

Short-Term Construction

Project implementation could expose construction workers and campus occupants to significant health or safety risks through demolition of buildings/structures, upgrades to existing buildings, or relocation of underground utilities that contain hazardous materials. In particular, Item No. 8 proposes demolition of two buildings/structures totaling approximately 512 SF or 18,200 CF of generated waste materials, which could expose construction workers and campus occupants to hazardous materials and wastes that may be present in existing buildings/facilities. Demolition of these existing buildings/structures (i.e., Burning Tower Building and Air Pollution Utility Building) could release hazardous materials if lead-based paint or asbestos-containing materials are present in structures. Additionally, any activity that involves cutting, grinding, or drilling during building renovation or demolition, or relocation of underground utilities, could release friable asbestos fibers and/or lead dust unless proper precautions are taken. All applicable federal and State rules and regulations must be followed when asbestos-containing materials are disturbed during demolition or renovation.

Project demolition and renovation activities in which asbestos would be disturbed are subject to regulation under South Coast Air Quality Management District Rule 1403. The campus is required to notify federal and local government agencies prior to beginning any renovation or

demolition that could disturb asbestos, and implement precautions and safe work practices to eliminate or reduce the potential for release of asbestos fibers. Similarly, lead is regulated as a hazardous material and a toxic air contaminant and, according to applicable health and safety and hazardous materials regulations, warrants inspection, testing, and removal from building materials on campus. Buildings demolished during construction activities could also contain hazardous materials, including radioactive materials, which could be present in fixtures or building materials removed during demolition. The Broadscope Radioactive Materials License requires testing and implementation of decontamination and waste handling activities in accordance with applicable regulations when facilities using radioactive materials are renovated or demolished. This would ensure that risks due to the potential exposure to radioactive materials in structures as they are renovated and/or demolished are less than significant.

Construction activities could occur in areas that contain contaminated soil, which could expose construction workers or campus occupants to hazardous substances. Upgrades to existing buildings, demolition of buildings/facilities, or extension or modification of utility infrastructure could encounter abandoned pipes, discarded building materials, unknown underground storage tanks (USTs), or previously unidentified contaminated soil, which could result in the exposure of construction workers or campus occupants to hazardous materials.

Implementation of PP 4.7-1, which requires implementation of the current (or equivalent) health and safety plans, programs, and practices related to the use, storage, disposal, or transportation of hazardous materials, PP 4.7-2, which would ensure that hazardous materials present in buildings to be demolished would be identified and handled appropriately, PP 4.7-4, which requires an assessment if suspected contaminated soil (and/or groundwater) is encountered during construction, notification of EH&S, and preparation of a remediation plan if required, as well as continued compliance with federal and State health and safety laws and regulations, would be required. Following compliance with PP 4.7-1, PP 4.7-2, and PP 4.7-4, Project implementation would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials during the construction phase. A less than significant impact would occur in this regard.

Long-Term Operations

As discussed above, the proposed infrastructure improvements include underground pipelines, ductbanks, and conduits/circuits, and a TES tank/pump building that would not involve the routine transport, use, or disposal of hazardous materials. Item Nos. 9 and 10 include facility upgrades to existing buildings (i.e., Satellite Chiller Plant and Steam Plant/Central Utility Plant) where existing operations require the routine transport, use, and disposal of hazardous materials. These proposed improvements would result in an increase in the amount of hazardous materials that are used, stored, transported, and disposed, thereby, increasing the potential for an accident or accidental release of hazardous materials or wastes.

The increased quantities of hazardous materials transported to and from UCR that would be associated with the proposed Projects were anticipated in the LRDP EIR. Although transportation of hazardous materials has associated risks of spills or leaks, appropriate management of transported materials in compliance with applicable laws and regulations would minimize the inherent risks. United States Department of Transportation regulations for packaging and handling would be followed. Therefore, the future transport of hazardous wastes generated by the proposed Projects, although not considered significant, would be subject to

guidelines developed by UCR for the proper disposal of wastes. As identified in the LRDP EIR, continued implementation of PP 4.7-1 would ensure proper procedure related to the use, storage, disposal, and transportation of hazardous materials. Additionally, health and safety plans are also identified in the Business Plan, the Broadscope Radioactive Materials License, as well as the following programs: Biosafety, Emergency Management, Environmental Health, Hazardous Materials, Industrial Hygiene and Safety, Laboratory/Research Safety, Radiation Safety, and Integrated Waste Management. With continued implementation of PP 4.7-1, PP 4.7-3, as well as adherence to additional health and safety plans, Project implementation would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials during the long-term operations. A less than significant impact would occur in this regard. Refer also to Response 6.7(a).

With implementation of the following existing campus PPs, as discussed above, and incorporated as part of the proposed Project, Project implementation would not 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 and this potential impact is considered less than significant.

PP 4.7-1 The campus shall continue to implement the current (or equivalent) health and safety plans, programs, and practices related to the use, storage, disposal, or transportation of hazardous materials, including, but not necessarily limited to, the Business Plan, the Broadscope Radioactive Materials License, and the following programs: Biosafety, Emergency Management, Environmental Health, Hazardous Materials, Industrial Hygiene and Safety, Laboratory/Research Safety, Radiation Safety, and Integrated Waste Management. These programs may be subject to modification as more stringent standards are developed or if the programs are replaced by other programs that incorporate similar health and safety protection measures.

PP 4.7-2 The campus shall perform hazardous materials surveys on buildings and soils, if applicable, prior to demolition. When remediation is deemed necessary, surveys shall identify all potential hazardous materials within the structure to be demolished, and identify handling and disposal practices. The campus shall follow the practices during building demolition to ensure construction worker and public safety.

PP 4.7-3 The campus will inform employees and students of hazardous materials minimization strategies applicable to research, maintenance, and instructional activities, and require the implementation of these strategies where feasible. Strategies include but are not limited to the following:

(i) Maintenance of online database by EH&S of available surplus chemicals retrieved from laboratories to minimize ordering or new chemicals.
(ii) Shifting from chemical usage to micro techniques as standard practice for instruction and research, as better technology becomes available.

PP 4.7-4 Prior to demolition of structures on the campus or new construction on former agricultural teaching and research fields, the campus shall complete a Phase I environmental site assessment to determine the potential for soil or groundwater contamination on a project site. If the assessment determines that a substantial potential exists on the site, the campus shall develop and implement an appropriate testing and, if needed, develop a remediation strategy prior to demolition or construction activities.

If contaminated soil and/or groundwater is encountered during the removal of onsite debris or during excavation and/or grading activities:

- *(i) The construction contractor(s) shall stop work and immediately inform EH&S.*
- *(ii) An on-site assessment shall be conducted to determine if the discovered materials pose a significant risk to the public or construction workers.*
- *(iii) If the materials are determined to pose such a risk, a remediation plan shall be prepared and submitted to EH&S to comply with all federal and State regulations necessary to clean and/or remove the contaminated soil and/or groundwater.*
- *(iv) Soil remediation methods could include, but are not necessarily limited to, excavation and on-site treatment, excavation and off-site treatment or disposal, and/or treatment without excavation.*
- *(v) Remediation alternatives for cleanup of contaminated groundwater could include, but are not necessarily limited to, on-site treatment, extraction and off-site treatment, and/or disposal.*
- *(vi) The construction schedule shall be modified or delayed to ensure that construction will not inhibit remediation activities and will not expose the public or construction workers to significant risks associated with hazardous conditions.*

HAZARDS AND HAZARDOUS MATERIALS - *Would the project:*	**Potentially Significant Impact**	**Less Than Significant With Project-Level Mitigation Incorporated**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant Impact**	**No Impact**
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?					✘

DISCUSSION

The proposed infrastructure improvement sites are not located within 0.25 miles of an existing or proposed school. Therefore, no impact would occur in this regard.

HAZARDS AND HAZARDOUS MATERIALS - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
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?					✘

DISCUSSION

According to the LRDP EIR, the proposed infrastructure sites are not listed on a regulatory site. Thus, no impact is anticipated in this regard.

HAZARDS AND HAZARDOUS MATERIALS - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	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?					✘

DISCUSSION

The campus is not located within two miles of a public airport or public use airport, and has not been included in an airport land use plan. Consequently, the LRDP Initial Study concluded that implementation of the 2005 LRDP would not result in any impacts from safety hazards associated with any public use airport. Therefore, Project implementation would not result in a safety hazard for people residing or working in the project area.

HAZARDS AND HAZARDOUS MATERIALS - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
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?					✘

DISCUSSION

The UCR campus is not located within the vicinity of a private airstrip. Therefore, the LRDP Initial Study concluded that implementation of the 2005 LRDP would not result in any impacts from safety hazards associated with a private airstrip.

HAZARDS AND HAZARDOUS MATERIALS - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				✘	

DISCUSSION

The campus Emergency Operations Plan (EOP), which is implemented by EH&S' Fire Prevention staff, has been developed to establish a continuing state of emergency readiness and response on the UCR Campus. The plan would be invoked to manage all emergency incidents occurring during a natural and/or man-made disaster and be utilized to the maximum extent possible to protect life and property, and to restore the campus to normal operating conditions in the shortest possible time.

According to the LRDP EIR, implementation of the 2005 LRDP would result in the construction of new buildings and facilities that could result in lane or roadway closures. In addition, future development could occur within areas that are currently identified as emergency assembly areas. The analysis concluded that with implementation of the LRDP PP, PS, and MM, this impact would be reduced to a less than significant level.

Construction activities associated with the proposed infrastructure improvements (i.e., temporary construction barricades or other obstructions) could impede emergency access on campus potentially affecting emergency response or evacuation plans. More specifically, Item No. 3 involves a new 12-inch domestic water line within North Campus Drive and Item 15 involves extending a 12kV circuit in an underground ductbank, which would occur (in part) within the South Campus Drive ROW. Item No. 12 involves extending two 12kV circuits in an underground ductbank within Recreation Mall and adjacent to Linden Mall. Additionally, access to pedestrian sidewalks and paths, such as those traversing Linden Mall, Recreation Mall, North Mall (North Campus Drive), and other pedestrian access routes throughout the Campus, could be temporarily closed. Therefore, the proposed infrastructure improvements may impair implementation of or physically interfere with the campus EOP.

Implementation of PP 4.7-7(a), regarding the provision of an unobstructed single traffic lane, and PP 4.7-7(b), which requires consultation with emergency service providers regarding roadway closures, would assure that impacts to emergency access during the Project construction phase are lessened.

As discussed above, the following existing campus PPs are incorporated as part of the Project to reduce the potential of the Project to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

PP 4.7-7(a) To the extent feasible, the campus shall maintain at least one unobstructed lane in both directions on campus roadways. At any time only a single lane is available, the campus shall provide a temporary traffic signal, signal carriers (i.e., flagpersons), or other appropriate traffic controls to allow travel in both directions. If construction activities require the complete closure of a roadway

segment, the campus shall provide appropriate signage indicating alternative routes.

PP 4.7-7(b) To maintain adequate access for emergency vehicles when construction projects would result in roadway closures, the Office of Design and Construction shall consult with the UCPD, EH&S, and the RFD to disclose roadway closures and identify alternative travel routes.

However, even with implementation of PP 4.7-7(a) and PP 4.7-7(b), the proposed Project could physically interfere with an adopted Emergency Operations Plan. With incorporation of LRDP MM 4.7-7(a), which requires the avoidance of evacuation assembly areas, as designated under the Emergency Operations Plan, as an element of the Project, this potential impact would be mitigated to a less than significant level.

MM 4.7-7(a) Evacuation zones designated in the UCR Emergency Operations Plan will be avoided, to the extent feasible, when siting construction staging areas. Where evacuation zones cannot be avoided, alternative evacuation zones shall be identified. UCPD and the Riverside Fire Department shall be notified of alternative evacuation zones so that they can respond accordingly to any emergencies.

Refer to Response 6.15(e) for a discussion regarding potential impacts associated with emergency access.

HAZARDS AND HAZARDOUS MATERIALS - *Would the project:*	**Potentially Significant Impact**	**Less Than Significant With Project-Level Mitigation Incorporated**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant Impact**	**No Impact**
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?				✘	

DISCUSSION

With the exception of Item No. 9 (in part, i.e., TES Tank #3 and pump building), the proposed infrastructure improvements would be implemented in the East Campus' academic core or around its perimeter, which are not located adjacent to a wildland fire hazard area. However, TES Tank #3 and the pump building are proposed in the lower slopes of the southeast hills. According to the LRDP EIR, the southeast hills and Botanic Gardens may be subject to wildland fires.[25] The TES tank/pump building's proximity to the Botanic Gardens, would increase the risk of exposure to wildland fires that could occur in the nearby Box Springs Mountains and spread to on campus areas dominated by natural vegetation.

TES Tank #3 has been sensitively sited in that it is proposed in the lower slopes of the southeast hills. However, TES Tank #3 and the pump building would be exposed to risk involving wildland fires. With incorporation of MM 4.7-8(a), which would require landscaping

[25] University of California, Riverside, *University of California Riverside 2005 Long Range Development Plan Final Environmental Impact Report Volume I Draft EIR*, Page 4.7-40.

with appropriate plant materials, and MM 4.7-8(b), which would require implementation of annual fuel management procedures, as elements of the Project, TES Tank #3 and the pump building would not be exposed to a significant risk involving wildland fires, and a less than significant impact would occur in this regard.

MM 4.7-8(a) *Provide landscaping around development areas adjacent to preserved open space that emphasizes native or traditional plant material where appropriate and provides a transition to developed areas in a manner that minimizes dense vegetation immediately adjacent to structural development. Landscaping shall be shown on building plans, and plans shall be reviewed and approved for conformance with this measure prior to project design approval and project-specific construction documents.*

MM 4.7-8(b) *Implement annual fuel management procedures to maintain a firebreak between the undeveloped areas and structures*.

6.8 HYDROLOGY AND WATER QUALITY

BACKGROUND

Potential impacts to hydrology and water quality as a result of full implementation of the 2005 LRDP were evaluated in Section 4.8 (Hydrology and Water Quality) of the 2005 LRDP EIR (Pages 4.8-1 through 4.8-41). The proposed Project is within the scope of the analysis presented in the 2005 LRDP EIR.

PSs, PPs, and MMs regarding hydrology and water quality adopted with the 2005 LRDP EIR that are applicable to the proposed Project are listed following each discussion below. (Refer to Appendix 11.1 for the full text.)

HYDROLOGY AND WATER QUALITY – *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements?				✘	

DISCUSSION

Short-Term Construction

Runoff during construction activities associated with the proposed Project could pick up pollutants and carry them into the storm drain system. Common sources of pollutants from construction sites include sediments from soil erosion, construction materials and waste, landscaping runoff containing fertilizers and pesticides, and spilled oil, fuel, and other fluids from construction vehicles and heavy equipment.

The campus currently complies with NPDES Phase I requirements (General Construction Permit) and Phase II requirements through preparation and implementation of a campus

stormwater management plan (SWMP). LRDP PP 4.8-1 requires compliance with these statutes and regulations in order to ensure that campus stormwater quality is not substantially degraded by requiring discharges to continue to meet the requirements of the SWRCB and RWQCB, and by preventing polluted discharges from leaving construction sites. Thus, the proposed Project would be required to comply with the UCR campus' SWMP. The goal of the SWMP is to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP) and to identify activities or structural improvements that help reduce the quantity and improve the quality of the storm water runoff. Best Management Practices (BMPs) have been developed for the SWMP to reduce to the MEP discharge of pollutants to the storm drain system to the MEP. BMPs include treatment controls, operating procedures, and practices to control site runoff, spills and leaks, sludge or waste disposal, or drainage from raw material storage. The BMPs provided in the SWMP (measurable goals section) are to be implemented by UCR staff and outside contractors. Whenever work is performed at UCR, the steps outlined in each relevant BMP or other proven technique that reach the same goal must be used in order to ensure compliance with storm water discharge regulations. Compliance with the UCR SWMP and NPDES permit requirements would reduce construction-related impacts to water quality to a less than significant level. Additionally, PP 4.8-3(c) requires implementation of dust control measures consistent with SCAQMD Rule 403-Fugitive Dust during the construction phase, further reducing potential construction-related impacts to water quality.

Long-Term Operations

The infrastructure improvements would involve underground pipelines, ductbanks, and conduits/circuits, or facility upgrades within existing buildings (with the exception of TES Tank #3 and the pump building). Additionally, with the exception of TES Tank #3 and the pump building, the proposed infrastructure improvements would be implemented in the East Campus' academic core and its perimeter, which has been largely developed. A nominal increase in impermeable surface area, which would result in additional runoff (e.g., stormwater) that may contain stormwater contaminants, would occur with implementation of these proposed infrastructure improvements. However, the constituent pollutants entering the campus and City storm drain systems would not change in character as a result of the proposed infrastructure improvements.

A reduction in permeable surfaces is considered a water quality impact, because permeable surfaces allow for rain and runoff to infiltrate into the ground. Infiltration both reduces the amount of flow that is capable of washing off additional pollutants and filters water removing potential pollutants. Potential long-term water quality issues associated with proposed TES Tank #3 and the pump building involve stormwater and nuisance water runoff. The reduction in permeable surfaces associated with TES Tank #3 and the pump building would be nominal, as the tank would be mostly buried in the hill and the pump building would be relatively small (i.e., approximately 18 feet x 32 feet). Therefore, the nominal changes in permeable surfaces would not significantly impact long-term water quality.

The campus currently complies with NPDES Phase I requirements (general construction permit) and Phase II requirements through its SWMP. The Project would be subject to compliance with LRDP PP 4.8-1, which requires continued compliance with all applicable water quality requirements, and PP 4.8-3(d), which requires that the campus continue to implement BMPs, as identified in the UCR SWMP. Compliance with the UCR campus' SWMP (including Structural and Non-Structural BMPs) and NPDES permit requirements would avoid or reduce to less than

significant the Project's potential impacts associated with water quality standards or waste discharge requirements.

PP 4.8-1: The campus will continue to comply with all applicable water quality requirements established by the SARWQCB.

PP 4.8-3(c): The campus shall continue to implement dust control measures consistent with SCAQMD Rule 403—Fugitive Dust during the construction phases of new project development. The following actions are currently recommended to implement Rule 403 and have been quantified by the SCAQMD as being able to reduce dust generation between 30 and 85 percent depending on the source of the dust generation. The Campus shall implement these measures as necessary to reduce fugitive dust. Individual measures shall be specified in construction documents and require implementation by construction contractor. Refer to Air Quality PP 4.3-2(b) for complete text.

PP 4.8-3(d): In compliance with NPDES, the campus would continue to implement Best Management Practices, as identified in the UCR Stormwater Management Plan (UCR 2003):

(i) Public education and outreach on stormwater impacts
(ii) Public involvement/participation
(iii) Illicit discharge detection and elimination
(iv) Pollution prevention/good housekeeping for facilities
(v) Construction site stormwater runoff control
(vi) Post-construction stormwater management in new development and redevelopment

HYDROLOGY AND WATER QUALITY - *Would the project:*	**Potentially Significant Impact**	**Less Than Significant With Project-Level Mitigation Incorporated**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant Impact**	**No Impact**
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)?				✘	

DISCUSSION

UCR is located near the southeastern edge of the Riverside-Arlington groundwater sub-basin. According to the LRDP EIR, the UCR campus soils have relatively low permeability, which limits the amount of groundwater recharge. Therefore, the campus is not considered a significant regional groundwater recharge area. According to the LRDP EIR, implementation of the LRDP would increase the demand for potable water and increase the land area covered by impervious surfaces. The LRDP concluded this impact would be less than significant with implementation of the relevant LRDP PS and PP.

The infrastructure improvements would involve underground pipelines, ductbanks, and conduits/circuits, or facility upgrades within existing buildings, a TES tank, and a pump building. None of these improvements would result in an increased demand for potable water. Additionally, with the exception of TES Tank #3 and the pump building, the proposed infrastructure improvements would be implemented in the East Campus' academic core and its perimeter, which has been largely developed. A nominal increase in impermeable surface area would occur with implementation of these proposed infrastructure improvements. Further, proposed TES Tank #3 and the pump building would only nominally increase the impermeable surface area at the improvement site, as the tank would be mostly buried in the hill and the pump building would be relatively small. Substantial interference with groundwater recharge would not occur, due to the relatively limited size of the improvements and since the campus is not considered a significant regional groundwater recharge area.

HYDROLOGY AND WATER QUALITY - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
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?				✘	

DISCUSSION

The infrastructure improvements would involve underground pipelines, ductbanks, and conduits/circuits, or facility upgrades within existing buildings (with the exception of TES Tank #3 and the pump building). Additionally, with the exception of TES Tank #3 and the pump building, the proposed infrastructure improvements would be implemented in the East Campus' academic core and its perimeter, which has been largely developed. A nominal increase in impermeable surface area would occur with implementation of these proposed infrastructure improvements. Further, because these areas are already served by stormwater drainage facilities, the proposed infrastructure would not substantially alter the existing drainage patterns of the improvement sites or areas, or result in substantial erosion or siltation.

Proposed TES Tank #3 and the pump building would only nominally increase the impermeable surface area at the improvement site. The tank would be mostly buried in the hillside and the area revegetated, reducing the potential impermeable surface area. Thus, substantial alterations to drainage patterns that could result in substantial erosion or siltation on- or off-site are not anticipated. Impacts in this regard are considered less than significant.

HYDROLOGY AND WATER QUALITY - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?				✘	

DISCUSSION

The LRDP EIR concluded implementation of the 2005 LRDP would not substantially alter the existing drainage patterns on the campus, however, would increase the extent of impervious surfaces and increase stormwater runoff. With implementation of the LRDP PP, this impact would be reduced to a less than significant level.

The infrastructure improvements would involve underground pipelines, ductbanks, and conduits/circuits, or facility upgrades within existing buildings (with the exception of TES Tank #3 and the pump building). Additionally, with the exception of TES Tank #3 and the pump building, the proposed infrastructure improvements would be implemented in the East Campus' academic core and its perimeter, which has been largely developed. A nominal increase in impermeable surface area would occur with implementation of these proposed infrastructure improvements. However, because these areas are already served by stormwater drainage facilities, and therefore, would not substantially alter existing drainage patterns, the proposed infrastructure improvements would not substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site.

Proposed TES Tank #3 and the pump building would only nominally increase the impermeable surface area at the improvement site. The tank would be mostly buried in the hillside and the area revegetated, reducing the potential impermeable surface area. Thus, substantial alterations to drainage patterns that could substantially increase the rate or amount of surface runoff and result in flooding on- or off-site are not anticipated. Project development would not increase the amount of storm run-off beyond that anticipated within the LRDP EIR. The potential for localized flooding to occur due to Project implementation is considered less than significant.

HYDROLOGY AND WATER QUALITY - *Would the project:*	**Potentially Significant Impact**	**Less Than Significant With Project-Level Mitigation Incorporated**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant Impact**	**No Impact**
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?				✘	

DISCUSSION

Refer to Responses 6.8(a) and 6.8(d).

HYDROLOGY AND WATER QUALITY - *Would the project:*	**Potentially Significant Impact**	**Less Than Significant With Project-Level Mitigation Incorporated**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant Impact**	**No Impact**
f. Otherwise substantially degrade water quality?				✘	

DISCUSSION

Refer to Response 6.8(a).

HYDROLOGY AND WATER QUALITY - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
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?					✘

DISCUSSION

Figure 4.8-2 of the LRDP EIR (FEMA Map), illustrates the areas subject to 100-year flooding. According to Figure 4.8-2, the portions of the campus that are within a 100-year flood hazard area include areas along the University Arroyo, Big Springs Road, North Campus Drive, and the Lower Intramural Fields. The proposed Project does not involve the development of housing. Therefore, Project implementation would not place housing within a 100-year flood hazard area and no impact would occur in this regard.

8. HYDROLOGY AND WATER QUALITY - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
h. Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?				✘	

DISCUSSION

Portions of the campus are identified in the 2005 LRDP EIR as within a 100-year flood hazard area, including areas along the University Arroyo, Big Springs Road, North Campus Drive, and the Lower Intramural Fields; refer to LRDP EIR Figure 4.8-2. The University Arroyo Flood Control & Enhancement project (UAFC&E) was completed by the Campus in 2007. The UAFC&E included reconstructing the cross-section of the drainage ways located along Big Springs Road and North Campus Drive, constructing a new detention basin along the Botanic Garden tributary, and installing a new seven-foot box culvert beneath the Lower Intramural Fields. This project was designed to remove areas of the campus from the identified 100-year flood hazard area. The Letter of Map Revision (LOMR) is pending with the Federal Emergency Management Agency.

Infrastructure improvement Item Nos. 1, 2, 3, 4, 5, 6, 7, 12, and 14 are proposed within this former 100-year flood hazard area. Also, these infrastructure improvements involve pipelines, ductbanks, and conduits/circuits, and a padmount switch, which would be underground and/or incapable of impeding or redirecting flood flows. TES Tank #3 and the pump building are the only structures proposed by the Project. As illustrated in LRDP EIR Figure 4.8-2, the proposed TES Tank #3 and pump building improvement site is not located within a 100-year flood hazard

area. Therefore, Project implementation would not place structures within a 100-year flood hazard area, which would impede or redirect flood flows. A less than significant impact would occur in this regard.

HYDROLOGY AND WATER QUALITY - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
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?				✘	

DISCUSSION

The dam closest to the UCR campus is Prado Dam, which is located on the Santa Ana River downstream from UCR, and thus poses no risk to the campus. The potential for flooding to occur on the UCR campus as a result of a catastrophic failure of the Seven Oaks Dam is remote. The Santa Ana Pipeline is located east of the campus along the base of the Box Springs Mountains. Although the potential for catastrophic failure of the Santa Ana Pipeline is considered remote, continued implementation of the Campus Emergency Operations Plan would ensure an appropriate response to flooding hazards in the event of a failure of the pipeline. Therefore, Project implementation would not expose people or structures to a significant risk involving flooding, as a result of the failure of a levee or dam.

HYDROLOGY AND WATER QUALITY - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
j. Inundation by seiche, tsunami, or mudflow?				✘	

DISCUSSION

Secondary seismic hazards related to ground shaking include tsunamis and seiches. Due to the inland location of the campus, hazards from tsunamis are considered very low. Due to the inland location of the campus and intervening mountains, hazards from tsunamis are considered insignificant. No open water bodies of sufficient size are located in the immediate vicinity of the campus; therefore, hazards from seiches are considered negligible.

According to the LRDP EIR, the potential for mudflows to affect campus development is limited to areas immediately adjacent to the southeast hills, or within the existing on-campus arroyos. With the exception of proposed TES Tank #3 and the pump building, the proposed infrastructure improvements would be implemented in the East Campus' academic core or around its perimeter, which are outside of the potential mudflow areas. The proposed TES Tank #3 and pump building site is located in the lower slopes of the southeast hills, in an area potentially exposed to mudflows. The project would utilize contour grading and includes slope stabilization strategies including revegetation of the tank and pump building site. Therefore, Project implementation would result in a less than significant impact involving mudflows.

6.9 LAND USE AND PLANNING

BACKGROUND

Potential impacts to land use and planning as a result of full implementation of the 2005 LRDP were evaluated in Section 4.9 (Land Use and Planning) of the 2005 LRDP EIR (Pages 4.9-1 through 4.9-35). The proposed Project is within the scope of the analysis presented in the 2005 LRDP EIR.

PSs, PPs, and MMs regarding land use and planning adopted with the 2005 LRDP EIR that are applicable to the proposed Project are listed following each discussion below. (Refer to Appendix 11.1 for the full text.)

LAND USE AND PLANNING - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
a. Physically divide an established community?					✘

DISCUSSION

The City of Riverside has developed around and in response to the campus. Implementation of the 2005 LRDP would not include any development outside of established campus boundaries, and no incursion into, or division of, the surrounding residential communities would occur. Therefore, the LRDP Initial Study determined that no effects related to physically dividing an established community would occur. Similarly, the proposed infrastructure improvements would occur within the established campus boundaries, are consistent with the adopted LRDP (6.9(b), see below), and would not physically divide an established community.

9. LAND USE AND PLANNING - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the Master Plan, general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental affect?				✘	

DISCUSSION

The 2005 LRDP land use categories for the proposed infrastructure improvement sites are: Academic; Athletics and Recreation; Open Space; Open Space Reserve; Campus Support; and Parking. The infrastructure improvements would involve underground pipelines, ductbanks, minor utilities (i.e., generator and padmount switch), and conduits/circuits, transformer, or facility upgrades within existing buildings. The proposed infrastructure would be permitted within these land use designations and would not be incompatible with existing adjacent land uses.

Similarly, TES Tank #3 and the pump building would not result in land use incompatibilities, since the improvements would be located in a remote location adjacent to existing TES Tank #2, in an LRDP land use designation that allows sensitively sited utilities, and the areas immediately surrounding the site are vacant. Moreover, as concluded in Section 5.0, *Relationship to the 2005 Long Range Development Plan,* analysis concluded the proposed Project is consistent with the 2005 LRDP and 2005 LRDP EIR.

9. LAND USE AND PLANNING - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?				✘	

DISCUSSION

Refer to Response 6.4(a).

6.10 MINERALS

BACKGROUND

The Initial Study for the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not result in any impacts to mineral resource recovery activities, nor result in the loss of availability of any locally important mineral recovery sites (LRDP EIR Appendix A, Pages 25-26). The proposed Project is consistent with the 2005 LRDP.

10. MINERAL RESOURCES - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?					✘

DISCUSSION

No known mineral resource exists on the campus. Therefore, Project implementation would not result in the loss of availability of a known mineral resource of value to the region.

10. MINERAL RESOURCES - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?					✘

DISCUSSION

No locally-important mineral resource recovery site exists on the campus. Therefore, Project implementation would not result in the loss of availability of a locally-important mineral resource recovery site.

6.11 NOISE

BACKGROUND

Potential noise impacts as a result of full implementation of the 2005 LRDP were evaluated in Section 4.10 (Noise) of the 2005 LRDP EIR (Pages 4.10-1 through 4.10-28). The proposed Project is within the scope of the analysis presented in the 2005 LRDP EIR.

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally defined as unwanted or excessive sound, which can vary in intensity by over one million times within the range of human hearing; therefore, a logarithmic scale, known as the decibel scale (dB), is used to quantify sound intensity.

Sound is characterized by both its amplitude and frequency (or pitch). The human ear does not hear all frequencies equally. In particular, the ear deemphasizes low and very high frequencies. To better approximate the sensitivity of human hearing, the A-weighted decibel scale (dBA) has been developed. On this scale, the human range of hearing extends from approximately 3 dBA to around 140 dBA.

Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks, and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Noise generated by mobile sources typically attenuates (is reduced) at a rate between 3.0 and 4.5 dBA per doubling of distance. The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Hard and flat surfaces, such as concrete or asphalt, have an attenuation rate of 3.0 dBA per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of about 4.5 dBA per doubling of distance. Noise generated by stationary sources typically attenuates at a rate between 6.0 and about 7.5 dBA per doubling of distance.

There are a number of metrics used to characterize community noise exposure, which fluctuate constantly over time. One such metric, the equivalent sound level (Leq), represents a constant sound that, over the specified period, has the same sound energy as the time-varying sound. Noise exposure over a longer period of time is often evaluated based on the Day-Night Sound Level (Ldn). This is a measure of 24-hour noise levels that incorporates a 10-dBA penalty for sounds occurring between 10 PM and 7 AM. The penalty is intended to reflect the increased human sensitivity to noises occurring during nighttime hours, particularly at times when people are sleeping and there are lower ambient noise conditions. Typical Ldn noise levels for light and medium density residential areas range from 55 to 65 dBA.

Two of the primary factors that reduce levels of environmental sounds are increasing the distance between the sound sources to the receiver and having intervening obstacles such as walls, buildings, or terrain features between the sound source and the receiver. Factors that act to increase the loudness of environmental sounds include moving the sound source closer to

the receiver, sound enhancements caused by reflections, and focusing caused by various meteorological conditions.

Regulatory Setting

UCR established noise thresholds in the 2005 LRDP EIR, including that a project could have a significant impact if it exposed people to or generated noise levels in excess of standards established in the local general plan or noise ordinances. Riverside Municipal Code Section 7.35.010(B)(5) regulates the allowable hours of construction activity, as does UCR through PP 4.10-7(a), which is applicable to this Project. In addition, the Municipal Code limits noise levels from construction activities to the maximum permitted exterior noise level for the affected land use, as follows

- The exterior noise standard of the applicable land use category, up to five decibels, for a cumulative period of more than thirty minutes in any hour; or
- The exterior noise standard of the applicable land use category, plus five decibels, for a cumulative period of more than fifteen minutes in any hour; or
- The exterior noise standard of the applicable land use category, plus ten decibels, for a cumulative period of more than five minutes in any hour; or
- The exterior noise standard of the applicable land use category, plus fifteen decibels, for the cumulative period of more than one minute in any hour; or
- The exterior noise standard for the applicable land use category, plus twenty decibels or the maximum measured ambient noise level, for any period of time.

Existing Noise Environment

UCR is located within the City of Riverside in western Riverside County, three miles east of downtown, and comprises 1,112 acres. Land uses surrounding the campus are primarily residential. Limited commercial uses are found along major streets. The Project area is immediately surrounded to the north, south, east, and west by campus land uses (academics, athletics and recreation, and open space.)

Noise Measurements

In order to quantify existing ambient noise levels in the proposed Project area, RBF Consulting conducted four ten-minute noise measurements on July 1, 2008; refer to Table N-1, *Noise Measurements*.

Table N-1
Noise Measurements

Site	Location	Day	
		Leq (dBA)	Time
1	Central Steam Plant (Bldg 295) off of Citrus Drive	68.1	11:43 AM
2	TES TANK #1 (Southeast Hills)	48.0	12:07 PM
3	Satellite Chiller Plant (Bldg 367)	47.7	12:25 PM
4	Between the Biomedical Sciences Teaching Complex (Bldg 385) and Boyce Hall (Bldg 341) off East Campus Drive	53.8	12:50 PM
Source: RBF Consulting, July 1, 2008; refer to *Appendix 11.6, Noise Data*.			

As indicated in Table N-1, the measured noise levels ranged from 47.7 dBA to 68.1 dBA. The complete results of the field measurements are included in Appendix 11.6, *Noise Data*. The location for Site 1 was chosen to obtain a measurement for current on-site noise near the existing Central Steam Plant. The location for Site 2 was chosen to obtain a measurement for current on-site noise near existing TES Tank #1. The measurement at Site 3 was chosen to obtain a measurement of current on-site noise near the existing Satellite Chiller Plant. The measurement at Site 4 provides existing noise levels near existing classroom buildings.

LRDP PSs, PPs, and MMs regarding noise adopted with the 2005 LRDP EIR that are applicable to the proposed Project are included below.

NOISE – *Would the project result in:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
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?				✘	

DISCUSSION

Short-Term (Construction) Noise Impacts

Construction activities generally are temporary and have a short duration, lasting from a few days to a period of months. Groundborne noise and other types of construction-related noise impacts would typically occur during the initial site preparation, which can create the highest levels of noise. Generally, site preparation has the shortest duration of all construction phases. Activities that occur during this phase include earth moving and soils compaction. High groundborne noise levels and other miscellaneous noise levels can be created during this phase by the operation of heavy-duty trucks, backhoes, and front-end loaders.

In addition to construction noise from the infrastructure improvement sites, increased noise would occur along access routes to the sites due to movement of equipment and workers. The primary heavy construction equipment and vehicles are expected to be moved on-site during the initial construction period and would have a less than significant short-term noise impact effect on nearby roadways. Daily transportation of construction workers is not expected to cause a significant effect, since this traffic would not be a substantial percentage of current daily volumes in the area and would not be anticipated to increase traffic noise levels by more than 1 dBA, which is not perceptible to the human ear.

A reasonable worst-case assumption is that the three loudest pieces of equipment would operate simultaneously within a focused area and continuously over at least one hour. The combined sound level of three of the loudest pieces of equipment (scraper, heavy truck, and a bulldozer) is 96.8 dBA when measured at 50 feet from the noise source. Table N-2, *Estimated Construction Noise in the Project Area*, summarizes predicted noise levels at various distances from an active construction site. These estimations of noise levels take into account distance attenuation, attenuation from molecular absorption, and anomalous excess attenuation. Construction noise would be most noticeable during the initial months of site-intensive grading.

The primary sources of acoustical disturbance would be random incidents, which would last less than one minute, such as dropping large pieces of equipment or the hydraulic movement of machinery lifts.

Table N-2
Estimated Construction Noise in the Project Area

Distance to Receptor (Feet)	Sound Level at Receptor (dBA)
50	96.8
100	90.8
200	84.8
400	78.8
600	75.8
800	72.8
1,000	69.8
dBA = A-weighted decibel(s)	
The following assumptions were utilized: Basic sound level drop-off rate: 6.0 dB per doubling distance Molecular absorption coefficient: 0.7 dB per 1,000 feet Analogous excess attenuation: 1.0 dB per 1,000 feet Reference sound level: 96.8 dBA Distance for reference sound level: 50 feet Assumes simultaneous operation of 4 scrapers, 2 heavy trucks, 1 backhoe, and 1 bulldozer	
Source: Leo L. Beraneck and Istvan L. Ver, *Noise and Vibration Control Engineering: Principles and Applications*, 1992.	

Construction related impacts are short-term and would cease upon completion of the grading/construction phase. Continued compliance with LRDP PP 4.10-7(a) through 4.10-7(d) would serve to minimize the length of time any sensitive receptors are exposed to significant noise levels. Therefore, construction noise impacts are concluded to be less than significant.

Mobile Noise Impacts

The proposed Project is not expected to generate an increase in trip generation. Therefore, the proposed Project would not result in mobile noise impacts.

Long-Term Stationary Noise Impacts

The noise associated with the proposed infrastructure improvement projects would be generated by the following sources:

- One (1) Emergency generator (Diesel driven 1.7 to 2.0 megawatt unit) and paralleling switchgear;
- One (1) 2,000 ton chiller with pumps;
- One (1) 2.7-million gallon TES Tank along with TES pumps and two (2) cell cooling towers;
- 50,000 lb/hr boiler with economizer and low NO_x burner; and
- Two (2) 100,000 lb/hr deaerators.

Although several noise sources would be introduced, many of them would operate for brief periods of time, be located underground, or located within buildings. The proposed improvements have been grouped by the type of enclosure that would be utilized.

Underground Equipment

The underground infrastructure improvements (chilled water supply extensions, steam and condensate return extensions, 12-inch domestic water line, 8-inch sewer line, natural gas line extension, 12 kV circuit extensions for new buildings on East Campus, extension of two 2-inch conduits to provide Fire Alarm and HVAC control to North Campus, concrete pad and wiring for future emergency generator, conversion of 4160V system to 12kV system, new 15kV 5-way padmount switches to vaults) would not be visible at ground level. Project related noise impacts from these facilities would be wholly contained, as they would be located below ground. Thus, a less than significant noise impact would result.

Aboveground Equipment

The aboveground infrastructure improvements are a new emergency generator, TES Tank #2 along with TES pumps and two cell cooling towers, and a 16kV transformer. The proposed emergency generator would only be used during routine maintenance activities and during power failures. The generator would be installed in the area near the two utility buildings proposed for demolition. An existing perimeter fence and landscaping currently buffer the site. The TES Tank and two TES pumps and cell cooling towers are proposed in the lower slopes of the southeast hills, west of existing TES Tank #2. TES Tank #3 would be similar in design and construction to Tank #2, including recessing into the hillside and perimeter plantings. The transformer would be placed between I-215 and the existing Riverside City Public Utilities/UCR Sub-Station. Due to the proposed remote locations of these improvements, perimeter fencing, and/or intervening structures/vegetation, these improvements would not result in a significant noise impact.

Enclosed Equipment

The aboveground chilled water supply improvements (2,000 ton chiller with pumps) and cooling system improvements (cooling towers) are proposed to be located within the existing Satellite Plant. The cooling tower would be buffered by an existing approximately ten-foot block wall. The aboveground heating system improvements (50,000 lb/hr boiler and two deaerators) are proposed to be located within the existing Central Steam Plant. The proposed boiler and deaerators would replace the existing defective boiler and deaerators. These improvements would be housed within existing structures with existing similar equipment, enclosed within concrete walls, which would attenuate a majority of the noise. Currently, there have been no noise complaints pertaining to these facilities. It is also noted that the older equipment would be replaced with newer equipment that operates with a lower noise profile. Thus, a less than significant impact would result.

Incorporation of the following PPs as part of the Project, as discussed above, would ensure that the potential for the Project to generate noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies, would be less than significant.

PP 4.10-7(a) To the extent feasible, construction activities shall be limited to 7:00 AM to 9 PM Monday through Friday, 8:00 AM to 6:00 PM on Saturday, no construction on Sunday and national holidays.

PP 4.10-7(b) The campus shall continue to require by contract specifications that construction equipment be required to be muffled or otherwise shielded.

PP 4.10-7(c) The campus shall continue to require that stationary construction equipment material and vehicle staging be placed to direct noise away from sensitive receptors.

PP 4.10-7(d) The campus shall continue to conduct regular meetings, as needed, with o-campus constituents to provide advance notice of construction activities in order to coordinate these activities with the academic calendar, scheduled events, and other situations, as needed.

NOISE - *Would the project result in:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?				✘	

DISCUSSION

Project construction can generate varying degrees of ground-borne vibration, depending on the construction procedure and the construction equipment used. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Ground-borne vibrations from construction activities rarely reach levels that damage structures.

The types of construction vibration impact include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. Ordinary buildings that are not particularly fragile would not experience any cosmetic damage (e.g., plaster cracks) at distances beyond 30 feet. This distance can vary substantially depending on the soil composition and underground geological layer between vibration source and receiver. In addition, not all buildings respond similarly to vibration generated by construction equipment. The vibration produced by construction equipment is illustrated in Table N-3, *Typical Vibration Levels for Construction Equipment*.

Table N-3
Typical Vibration Levels for Construction Equipment

Equipment	Approximate peak particle velocity at 25 feet (inches/second)	Approximate peak particle velocity at 75 feet (inches/second)
Large bulldozer	0.644	0.124
Loaded trucks	0.170	0.033
Small bulldozer	0.089	0.017
Auger/drill rigs	0.089	0.017
Jackhammer	0.076	0.015
Vibratory hammer	0.035	0.007
Vibratory compactor/roller	0.003	0.001
Notes: 1 - Peak particle ground velocity measured at 25 feet unless noted otherwise. 2 - Root mean square amplitude ground velocity in decibels (VdB) referenced to 1 micro-inch/second.		
Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Guidelines*, May 2006.		

Ground-borne vibration decreases rapidly with distance. As indicated in Table N-3, based on the Federal Transit Administration (FTA) data, vibration velocities from typical heavy construction equipment operations that would be used during project construction range from 0.003 to 0.644 inch-per-second peak particle velocity (PPV) at 25 feet from the source of activity. At 75 feet from the source of activity, vibration velocities range from 0.001 to 0.124 inch-per-second PPV. The FTA has published standard vibration velocities for construction equipment operations. In general, the FTA architectural damage criterion for continuous vibrations (i.e., 0.2 inch/second) appears to be conservative even for sustained pile driving. Pile driving levels often exceed 0.2 inch/second at distances of 50 feet, and 0.5 inch/second at 25 feet without any apparent damage to buildings.

With regard to the proposed Project, ground-borne vibration would be generated primarily during site clearing and grading activities on-site and by off-site haul-truck travel. The PPV from bulldozer and heavy truck operations is shown to be 0.124 inch-per-second PPV and 0.033 inch-per-second PPV, respectively, at a distance of 75 feet. The closest occupied structures with a daytime use are over 75 feet away from potential heavy construction activity zones. Since each of these values is below the 0.2 inch-per-second PPV significance threshold, vibration impacts associated with construction would be less than significant and no mitigation measures are required.

11. NOISE - *Would the project result in:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				✘	

DISCUSSION

Refer to Response 6.11(a).

NOISE - *Would the project result in:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?				✘	

DISCUSSION

Construction activities may result in short-term noise impacts on surrounding uses. Refer to Response 6.11(a).

NOISE - *Would the project result in:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	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 expose people residing or working in the project area to excessive noise levels?					✘

DISCUSSION

The Riverside Municipal Airport (International Air Transport Association [IATA] airport code "RAL") is a 451-acre general aviation airport located approximately 11 miles west of the campus, at 6951 Flight Road, in the City of Riverside. Due to the 11-mile separation between the airport and the campus, the proposed Project site is outside of RAL's 65 CNEL contour. Additionally, the Project involves construction of utility improvements, and does not include occupied structures. Therefore, implementation of the proposed Project would not result in exposure of people residing or working in the Project area to excessive or high noise impact levels.

NOISE – *Would the project result in:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
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?					✘

DISCUSSION

There are no private airstrips located on the UCR campus or in its vicinity. Refer to Response 6.11(e) for a discussion regarding the Riverside Municipal Airport, the nearest airport. Thus, no impacts would occur in this regard.

6.12 POPULATION AND HOUSING

BACKGROUND

Potential impacts to population and housing as a result of full implementation of the 2005 LRDP were evaluated in Section 4.11 (Population and Housing) of the 2005 LRDP EIR (Pages 4.11-1 through 4.11-21). The proposed Project is within the scope of the analysis presented in the 2005 LRDP EIR.

POPULATION AND HOUSING - *Would the project:*	Potentially Significant Impact	Less Than Significant with Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
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)?				✘	

DISCUSSION

The LRDP EIR concluded that implementation of the 2005 LRDP would directly induce substantial population growth in the area by proposing increased enrollment and additional employment, although this increase would not result in population or housing effects that would lead to a significant impact on the environment (LRDP EIR Page 4.11-13). With implementation of the relevant 2005 LRDP PS, this impact was concluded to be less than significant.

The Project involves extending utility distribution service to a currently undeveloped area north of North Campus Drive, including potable and domestic water, steam, chilled water, sanitary sewer, and 12kV electrical systems. Additionally, the Project involves improving existing electrical services, increasing heating capacity, and enhancing chilled water capacity. These improvements would not result in direct population growth, inasmuch as they would not involve the development of housing. Additionally, the Project would introduce no new students, faculty, or staff. However, the Project would result in secondary population growth in that the infrastructure would allow the campus to construct new buildings and facilities that would accommodate more students, faculty, etc.

The LRDP anticipated the campus' student population would increase to 25,000 students by 2015, consequently, approximately 11.8 million gsf of academic buildings, support facilities, and student housing would be required in order to support the future enrollment. Moreover, the LRDP anticipated infrastructure renovation/modification, as well as major utility system extensions/expansions would be required in order to accommodate additional development. Without the infrastructure improvements provided by the proposed Project, the Campus would

be unable to support the current and projected needs of the academic programs. As such, the Project would enable the new development necessary to accommodate the campus' population growth, as provided for in the LRDP.

Although utilities would be extended to provide services throughout the campus, the proposed Project is consistent with the planned use of the sites. Project implementation would be consistent with the analysis presented in the LRDP EIR because it would enable the campus to accomplish infill development in the Academic Core, as well as expansion of the Academic Core, which is described as follows (LRDP EIR Page 3-18):

> *New academic, administrative, student support, or library buildings could be developed in the area currently occupied by the Lower Intramural Fields, along the northern edge of University Avenue (south of the Gage Basin and west of Canyon Crest Drive), a portion of Parking Lot 13 (east of the under construction Physical Sciences Building), and Parking Lot V10. In addition to academic buildings, administration and library facilities could occur at these locations.*

The proposed Project would provide the essential infrastructure to support facilities for instruction and research, both within the area north of North Campus Drive (i.e., Lower Intramural Fields), as well as within the Academic Core, as anticipated in the LRDP. The impacts associated with the campus development consistent with the LRDP were analyzed in the LRDP EIR. The Project is part of a planned expansion and would not exceed LRDP EIR expectations regarding new development, or create or exceed growth that was analyzed in the LRDP EIR. Therefore, the Project's secondary/indirect population growth impacts were adequately addressed in the LRDP and LRDP EIR. Further, the campus will conduct additional CEQA review prior to implementing any project that directly results in population growth in the areas to be served by the Project.

Additionally, the proposed Project is responding to the campus' existing needs. Most of the UCR Campus' academic core infrastructure was designed and implemented in the 1960's, thus, is old and in poor condition. The existing utility network includes components for cooling, heating, electricity, potable water, natural gas, and sanitary sewer line to serve the East Campus. As discussed in Section 3.2, *Current Utilities Issues*, deficient heating, cooling capacity, and electrical distribution currently exist on the campus. More specifically, the existing needs are based on the following existing utilities issues:

- The heating system's existing boilers are in poor condition, subject to failure, and will not comply with SCAQMD's Rule 1146 future environmental emissions regulations.

- Use of the cooling system's electric chillers is limited to only off-peak hours, in order to comply with the negotiated electrical utility rate. The total cooling system capacity currently available from running the chillers only at night is approximately 8,400 tons-per-hour. Peak demand is currently (i.e., by 2008-09) projected to exceed this capacity. The Campus will require operation of the existing chillers more frequently during peak hours, ultimately exceeding the current agreement as negotiated with the City.

- The electrical distribution system is problematic, as the campus is running on two systems: an old and unreliable 5kV system, and a modern and efficient 12kV system. The existing system is obsolete and inefficient. Additionally, occupancy loads has increased throughout existing buildings. These demand factors and system

obsolescence have caused low voltage problems in many of the campus buildings currently on the 5kV power grid.

The East Campus Infrastructure Improvements Phase 2 Project would continue the improvements begun in Phase I to support current and projected enrollment and program growth. The proposed Project is consistent with the planning principles of the 2005 LRDP in that it would provide the essential infrastructure to support facilities for instruction and research, both within the area north of North Campus Drive, as well as within the Academic Core, as anticipated by the LRDP. The proposed Project is consistent with the planned use of the sites and would not create or exceed growth that was anticipated in the LRDP EIR. Therefore, Project implementation would result in a less than significant impact regarding population growth.

POPULATION AND HOUSING - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				✘	

DISCUSSION

The infrastructure improvement sites are not proposed near housing; therefore, no housing displacement would occur as a result of Project implementation. Refer to Response 6.12(a) for a discussion of the Project's potential for growth-inducing impacts.

POPULATION AND HOUSING - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				✘	

DISCUSSION

Project implementation would not displace people, as no structure housing people is located on the proposed improvement sites. Refer to Response 6.12(a) for a discussion of the Project's potential for growth-inducing impacts.

6.13 PUBLIC SERVICES

BACKGROUND

Potential impacts to public services as a result of full implementation of the 2005 LRDP were evaluated in Section 4.12 (Public Services) of the 2005 LRDP EIR (Pages 4.12-1 through 4.12-17). The proposed Project is within the scope of the analysis presented in the 2005 LRDP EIR.

PPs regarding public services adopted with the 2005 LRDP EIR that are applicable to the proposed Project are listed following each discussion portion below. (Refer to Appendix 11.1 for the full text.)

PUBLIC SERVICES - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
a. 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:					
Fire protection?				✘	
Police protection?				✘	
Schools?				✘	
Parks?				✘	
Other public facilities?					✘

DISCUSSION

Fire Protection

General fire and hazardous materials response protection on the campus is provided by the Riverside Fire Department (RFD) and the campus Environmental Health and Safety Office (EH&S). According to the LRDP EIR, the increase in occupied building space and campus population resulting from implementation of the 2005 LRDP would increase demands on the fire protection services, resulting in the potential for increased response times and fire flow requirements. Although the number of calls could increase somewhat due to the increase in campus population, no new, expanded, or altered fire protection services or facilities are required to maintain acceptable response times or distances. The analysis concluded that with implementation of the relevant LRDP PS and PP, this impact would be less than significant.

The proposed Project would extend the utility infrastructure to the development area north of North Campus Drive and upgrade electrical, cooling and heating services for the East Campus. The existing water line in the area of Canyon Crest Road and North Campus Drive is not adequate to meet anticipated future domestic water needs or future fire flow requirements. Proposed infrastructure Item No. 3 would provide a new 12-inch domestic water line and a six-inch branch service. The new 12-inch line would complete the campus water loop along North Campus Drive and provide water for buildings on north side of North Campus Drive. This line would also increase fire flow capacity to the campus' north and east sides. Therefore, Project implementation would result in beneficial impacts regarding fire protection services.

The proposed infrastructure improvements would not directly create a demand for fire protection services, inasmuch as they would not involve new development. However, the Project would

result in indirect increases in demands for fire protection in that the proposed infrastructure would allow the campus to construct new buildings and facilities (i.e., a net increase of approximately 7.1 million gsf campus-wide) that would accommodate more students, faculty, etc. The impacts to fire protection services associated with this potential future growth were analyzed in the LRDP EIR and concluded as being less than significant. The proposed infrastructure is being sized to accommodate this growth, but not exceed it. Additional CEQA review would be performed if and when projects in the area of Canyon Crest Road and North Campus Drive are proposed.

Continued implementation of existing PP 4.12-1(a) and PP 4.12-1(b), which involve various fire protection and accident prevention measures, would ensure adequate fire protection is available to serve new development. Moreover, all fire protection systems and equipment would be designed in accordance with the California Building Code, recommendations of the National Fire Protection Association (NFPA), National Electrical Code (NEC), UCR Guidelines, and the Owner's insurance underwriter.

PP 4.12-1(a): As development occurs, the following measures will be incorporated:

- *(i) New structures would be designed with adequate fire protection features in compliance with State law and the requirements of the State Fire Marshal. Building designs would be reviewed by appropriate campus staff and government agencies.*
- *(ii) Prior to implementation of individual projects, the adequacy of water supply and water pressure will be determined in order to ensure sufficient fire protection services.*
- *(iii) Adequate access will be provided within 50 feet of the main entrance of occupied buildings to accommodate emergency ambulant services.*
- *(iv) Adequate access for fire apparatus will be provided within 50 feet of stand pipes and sprinkler outlets.*
- *(v) Service roads, plazas, and pedestrian walks that may be used for fire or emergency vehicles will be constructed to withstand loads of up to 45,000 pounds.*
- *(vi) As implementation of the LRDP occurs, campus fire prevention staffing needs would be assessed, increases in staffing would be determined through such needs assessments.*

PP 4.12-1(b): (i) Accident prevention features shall be reviewed and incorporated into new structures to minimize the need for emergency response from the City of Riverside.

- *(ii) Increased staffing levels for local fire agencies shall be encouraged to meet need generated by LRDP project related on-campus population increases.*

Police Protection

The University of California Police Department (UCPD), which operates 24 hours-per-day, 365 days a year, provides police protection on campus from their station (3500 Canyon Crest Drive). UCPD employs police officers, security guards, and Community Service Officers (CSOs) to deliver public safety services to the campus community.

According to the LRDP EIR, the increase in occupied building space and campus population resulting from implementation of the 2005 LRDP would increase demands on the police protection services, resulting in the potential for increased response times. The analysis concluded that the incremental increase in the campus population may result in increased response times by the UCPD, and the need to hire additional police officers and support staff as necessary during the LRDP planning horizon.

The proposed infrastructure improvements would not directly create a demand for police protection services, inasmuch as they would not involve new development. However, the Project would result in indirect increases in demands for police protection in that the proposed infrastructure would allow the campus to construct new buildings and facilities (i.e., a net increase of approximately 7.1 million gsf) that would accommodate more students, faculty, etc. The impacts to police protection services associated with this potential future growth were analyzed in the LRDP EIR and concluded as being less than significant. The proposed infrastructure is being sized to accommodate this growth, but not exceed it. Further, additional CEQA review would be performed if and when projects in the area of Canyon Crest Road and North Campus Drive are proposed.

Continued implementation of existing PP would reduce potential impacts on police protection services to less than significant.

PP 4.12-2(a) As development under the LRDP occurs, the campus will hire additional police officers and support staff as necessary to maintain an adequate level of service, staff, and equipment, and will expand the existing police facility when additional space is required.

PP 4.12-2(b) The campus will continue to participate in the "UNET" program (for coordinated police response and staffing of a community service center), which provides law enforcement services in the vicinity of the campus, with equal participation of UCR and City police staffs.

Schools

The LRDP EIR concluded implementation of the LRDP would increase the number of school-age children in local school districts, but would not result in significant environmental effects associated with the provision of new or physically altered school facilities to accommodate the increased demand for student services. Impacts would be less than significant.

The proposed infrastructure improvements would not directly impact the school districts' student populations, inasmuch as they would not involve new development. However, the Project would indirectly generate students in that the proposed infrastructure would allow the campus to construct new buildings and facilities (i.e., a net increase of approximately 7.1 million gsf) that would accommodate more students, faculty, etc. The impacts to school districts associated with

this potential future growth were analyzed in the LRDP EIR and concluded as being less than significant. The proposed infrastructure is being sized to accommodate this growth, but not exceed it. Further, additional CEQA review will be performed if and when projects in the area of Canyon Crest Road and North Campus Drive are proposed.

Parks

Refer to Response 6.14 below for a discussion of the Project's potential impacts on Recreational facilities.

Other Public Facilities

Due to the nature and scope of the proposed infrastructure, Project implementation would not create the need for alteration or construction of any new governmental buildings. No impact would occur in this regard.

6.14 RECREATION

BACKGROUND

Potential impacts to recreation as a result of full implementation of the 2005 LRDP were evaluated in Section 4.13 (Recreation) of the 2005 LRDP EIR (Pages 4.13-1 through 4.13-12). The proposed Project is within the scope of the analysis presented in the 2005 LRDP EIR.

PSs regarding recreation adopted with the 2005 LRDP EIR that are applicable to the proposed Project are listed following each discussion below. (Refer to Appendix 11.1 for the full text.)

RECREATION - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
a. Would the project 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?				✘	

DISCUSSION

The LRDP EIR concluded implementation of the 2005 LRDP would increase the campus population and result in additional demand for recreational space. However, the development of additional facilities would not 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. With implementation of the relevant 2005 LRDP PS, potential impacts would be less than significant.

The proposed infrastructure improvements would not directly create a demand for parkland or increase the usage of existing recreational facilities, inasmuch as they would not involve new housing development. However, the Project would result in indirect increases in demands for recreational facilities in that the proposed infrastructure would allow the campus to construct

new buildings and facilities (i.e., a net increase of approximately 7.1 million gsf) that would accommodate more students, faculty, etc. The impacts to recreational facilities associated with this potential future growth were analyzed in the LRDP EIR and concluded as being less than significant. The proposed infrastructure is being sized to accommodate this growth, but not exceed it. Further, additional CEQA review will be performed if and when projects in the area of Canyon Crest Road and North Campus Drive are proposed.

Continued implementation of existing PS Open Space 7 would reduce potential impacts on recreational facilities to less than significant.

PS Open Space 7: Provide neighborhood parks and tot lots in the family housing areas as neighborhood open space.

RECREATION - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?					✘

DISCUSSION

The proposed Project does not include recreational facilities. Due to the nature and scope of the proposed facilities, Project implementation would not require the construction or expansion of recreational facilities. Existing campus recreational facilities are available for use by the faculty, staff, and students. No impact is anticipated in this regard.

6.15 TRANSPORTATION AND TRAFFIC

BACKGROUND

Potential impacts to transportation and traffic as a result of full implementation of the 2005 LRDP were evaluated in Section 4.12 (Transportation and Traffic) of the 2005 LRDP EIR (Pages 4.14-1 through 4.14-82). The proposed Project is within the scope of the analysis presented in the 2005 LRDP EIR.

PSs and PPs regarding transportation and traffic adopted with the 2005 LRDP EIR that are applicable to the proposed Project are listed following each discussion below. (Refer to Appendix 11.1 for the full text.)

15. TRANSPORTATION/TRAFFIC - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
a. Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?				✘	

DISCUSSION

The LRDP EIR projected that the increase in the campus population and parking spaces would increase campus trip generation by approximately 53,582 average daily vehicle trips, as shown in Table 4.14-18 of the LRDP EIR (LRDP-Related Increase in UCR Trip Generation). The analysis concluded that implementation of the mitigation specified in the LRDP EIR (Mitigation Measure 4.14-1[a-g]) would bring all of the adversely affected study intersections into acceptable operating conditions.

The proposed infrastructure improvements would not directly generate vehicular trips, inasmuch as they would not involve new development. However, the Project would indirectly generate increases in vehicular trips in that the proposed infrastructure would allow the campus to construct new buildings and facilities (i.e., a net increase of approximately 7.1 million gsf) that would accommodate more students, faculty, etc. The impacts due to increased trip generation associated with this potential future growth were analyzed in the LRDP EIR and concluded as being significant and unavoidable. The proposed infrastructure is being sized to accommodate this growth, but not exceed it. Further, additional CEQA review will be performed if and when projects in the area of Canyon Crest Road and North Campus Drive are proposed.

Continued implementation of existing PS and PP would minimize the campus' trip generation and potential traffic impacts.

PS Land Use 4: Pursue a goal of housing 50 percent of student enrollment in on-campus or campus-controlled housing.

PS Land Use 7: Over time, relocate parking from central campus locations to the periphery of the academic core and replace surface parking with structures, where appropriate.

PS Transportation 1: Develop an integrated multi-modal transportation plan to encourage walking, biking and transit use.

PS Transportation 2: Expand shuttle or tram service connecting major parking lots and campus destinations, and linking the East and West Campuses. Coordinate this system with RTA routes and schedules.

PS Transportation 3: Provide a continuous network of bicycle lanes and paths throughout the campus, connecting to off-campus bicycle routes.

PS Transportation 4: Over time, limit general vehicular circulation in the central campus, but allow transit, service and emergency vehicle access, and provide access for persons with mobility impairments.

PS Transportation 5: Provide bicycle parking at convenient locations.

PS Transportation 6: Implement parking management measures that may include:

- *Restricted permit availability;*
- *Restricted permit mobility; and*
- *Differential permit pricing.*

PP 4.14-1 The campus shall continue to implement a Transportation Demand Management program that meets or exceeds all trip reduction and AVR requirements of the SCAQMD. The TDM program may be subject to modification as new technologies are developed or alternate program elements are found to be more effective.

TRANSPORTATION/TRAFFIC - *Would the project:*	**Potentially Significant Impact**	**Less Than Significant With Project Level Mitigation Incorporated**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant Impact**	**No Impact**
b. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?			✘		

DISCUSSION

The LRDP EIR concluded implementation of the 2005 LRDP would result in additional vehicular traffic volumes, which would exceed established service levels on roadways designated by the Riverside County Congestion Management Program (CMP). This impact would be significant and unavoidable.

The proposed infrastructure improvements would not directly generate vehicular trips on CMP facilities, inasmuch as they would not involve new development. However, the Project would indirectly generate vehicular trips on CMP facilities in that the proposed infrastructure would allow the campus to construct new buildings and facilities (i.e., a net increase of approximately 7.1 million gsf) that would accommodate more students, faculty, etc. The impacts to CMP facilities associated with this potential future growth were analyzed in the LRDP EIR and concluded to remain significant and unavoidable. The proposed infrastructure is being sized to accommodate this growth, but not exceed it.

Continued implementation of existing PS and PP would minimize the campus' trip generation and potential traffic impacts on CMP facilities.

PS Land Use 4: Pursue a goal of housing 50 percent of student enrollment in on-campus or campus-controlled housing.

PS Land Use 7: Over time, relocate parking from central campus locations to the periphery of the academic core and replace surface parking with structures, where appropriate.

PS Transportation 1: Develop an integrated multi-modal transportation plan to encourage walking, biking and transit use.

PS Transportation 2: Expand shuttle or tram service connecting major parking lots and campus destinations, and linking the East and West Campuses. Coordinate this system with RTA routes and schedules.

PS Transportation 3: Provide a continuous network of bicycle lanes and paths throughout the campus, connecting to off-campus bicycle routes.

PS Transportation 4: Over time, limit general vehicular circulation in the central campus, but allow transit, service and emergency vehicle access, and provide access for persons with mobility impairments.

PS Transportation 5: Provide bicycle parking at convenient locations.

PS Transportation 6: Implement parking management measures that may include:

- *Restricted permit availability;*
- *Restricted permit mobility; and*
- *Differential permit pricing.*

PP 4.14-1 The campus shall continue to implement a Transportation Demand Management program that meets or exceeds all trip reduction and AVR requirements of the SCAQMD. The TDM program may be subject to modification as new technologies are developed or alternate program elements are found to be more effective.

TRANSPORTATION/TRAFFIC - *Would the project:*	**Potentially Significant Impact**	**Less Than Significant With Project-Level Mitigation Incorporated**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant Impact**	**No Impact**
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?					✘

DISCUSSION

The LRDP Initial Study determined that implementation of the 2005 LRDP would not result in a change in air traffic patterns or an increase in air traffic levels. No impact to air traffic patterns would occur as a result of the LRDP. Similarly, the proposed infrastructure improvements would not result in a change in are traffic patterns. No impact would occur in this regard.

15. TRANSPORTATION/TRAFFIC - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	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)?				✘	

DISCUSSION

Construction Activities

According to the LRDP EIR, construction activities associated with implementation of the LRDP could result in temporary closure of on-campus pedestrian sidewalks, paths, and roadways, or the provision of temporary pedestrian routes. The arrival or departure of construction vehicles and delivery of construction materials could intermittently disrupt pedestrian travel along pedestrian routes adjacent to construction sites. The analysis concluded that with implementation of the relevant LRDP PP, this impact would be less than significant.

The Project sites are generally located within the North Campus Engineering Complex, North Campus Drive, East Campus Drive, Satellite Chiller Plant, and Steam Plant/Central Utility Plant. Pedestrian sidewalks and paths, such as those traversing Linden Mall, Recreation Mall, North Mall (North Campus Drive), and others throughout the Camps, could be temporarily closed during Project-related construction activities. To lessen potential impacts in this regard, the Project would be subject to compliance with PP 4.14-5 and PP 4.14-6. With implementation of this existing practice, alternative pedestrian routes and appropriate signage would be provided, and a less than significant impact would occur in this regard.

Refer to Response 6.15(e) for further discussion regarding emergency access to the Project site.

PP 4.14-5 *To the extent feasible, the campus shall maintain at least one unobstructed lane in both directions on campus roadways. At any time only a single lane is available, the campus shall provide a temporary traffic signal, signal carriers (i.e. flagpersons), or other appropriate traffic controls to allow travel in both directions. If construction activities require the complete closure of a roadway segment, the campus shall provide alternate routes and appropriate signage.*

PP 4.14-6 *For any construction-related closure of pedestrian routes, the campus shall provide alternate routes and appropriate signage and provide curb cuts and street crossings to assure alternate routes are accessible.*

TRANSPORTATION/TRAFFIC - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
e. Result in inadequate emergency access?				✘	

DISCUSSION

According to the LRDP EIR, construction activities during implementation of the LRDP could result in the temporary closure of on-campus pedestrian sidewalks and paths or the provision of temporary pedestrian routes. The arrival or departure of construction vehicles and delivery of construction materials could intermittently disrupt pedestrian travel along pedestrian routes adjacent to construction sites. The analysis concluded that future development of the campus would be guided by LRDP PS Transportation 4, which would limit general vehicular circulation in the central campus, but allow transit, service, and emergency vehicle access. Thus, implementation of the 2005 LRDP would not restrict access to the campus for emergency vehicles and services and disabled access.

The Project site is generally located within the North Campus Engineering Complex, North Campus Drive, East Campus Drive, Satellite Chiller Plant, and Steam Plant/Central Utility Plant. Pedestrian sidewalks and paths, such as those traversing Linden Mall, Recreation Mall, North Mall (North Campus Drive), and others throughout the Campus, are used to provide emergency vehicle access. The sidewalks/paths surrounding the improvement sites may require upgrades to ensure that adequate emergency access is provided to existing and future buildings. Necessary upgrades to these sidewalks/paths are evaluated on a project-by-project basis, with input from the campus Fire Marshal and the Office of Design and Construction (ODC). Due to the character of the proposed Project, emergency access would be adequate and a less than significant impact would occur in this regard.

TRANSPORTATION/TRAFFIC - *Would the project:*	**Potentially Significant Impact**	**Less Than Significant With Project-Level Mitigation Incorporated**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant Impact**	**No Impact**
f. Result in inadequate parking capacity?		✘			

DISCUSSION

The LRDP EIR concluded construction of new facilities could result in temporary elimination of on-campus parking spaces. With implementation of the relevant 2005 LRDP PS, this potentially significant impact was reduced to a less-than-significant level.

The proposed Project would extend the utility infrastructure to the development area north of North Campus Drive and upgrade electrical, cooling, and heating services for the East Campus. There is no parking demand associated with the proposed infrastructure improvements. However, Item No. 1 (as well as Item Nos. 2, 4, 5, 6, 7, and 12 (in part)) would require a small lay down (encompassing approximately 15 spaces) for up to six months in Parking Lot 19. Lot 19 is not currently identified on campus maps, because it has been used as a construction yard for the CHASS I&R Building and is currently being used by the Commons Expansion project. Therefore, use of this area would not remove any currently designated parking spaces. Notwithstanding, mitigation is recommended requiring Parking Services to redirect users to Lot 24 for the duration of construction. It is noted, Lot 24 provides similar types of parking as Lot 19, excluding disabled parking. The loss of disabled parking and access would be addressed by posting signs prior to and throughout the duration of the impact to the lot. A telephone contact number to obtain transport from Parking Services would be provided. Approximately 92

parking spaces within Parking Lots V25 and P25 would be inaccessible during construction of Item No. 12 (approximately two weeks). Mitigation is recommended requiring that a pedestrian path of travel to the Recreation facilities adjacent to Lots V25 and P25 be maintained during construction.

With implementation of the recommended mitigation outlined below, potential short-term impacts involving the temporary elimination of on-campus parking spaces due to the proposed infrastructure improvements would be reduced to less than significant.

The proposed infrastructure improvements would not directly generate a demand for parking spaces, inasmuch as they would not involve new development. However, the Project would indirectly generate a demand for parking spaces in that the proposed infrastructure would allow the campus to construct new buildings and facilities (i.e., a net increase of approximately 7.1 million gsf) that would accommodate more students, faculty, etc. The impacts to parking facilities associated with this potential future growth were analyzed in the LRDP EIR and concluded as being less than significant. The proposed infrastructure is being sized to accommodate this growth, but not exceed it.

Continued implementation of existing PS and PP would minimize the campus' demand for parking, resulting in less than significant impacts.

PS Land Use 4: Pursue a goal of housing 50 percent of student enrollment in on-campus or campus-controlled housing.

PS Land Use 7: Over time, relocate parking from central campus locations to the periphery of the academic core and replace surface parking with structures, where appropriate.

PS Transportation 1: Develop an integrated multi-modal transportation plan to encourage walking, biking and transit use.

PS Transportation 2: Expand shuttle or tram service connecting major parking lots and campus destinations, and linking the East and West Campuses. Coordinate this system with RTA routes and schedules.

PS Transportation 3: Provide a continuous network of bicycle lanes and paths throughout the campus, connecting to off-campus bicycle routes.

PS Transportation 5: Provide bicycle parking at convenient locations.

PS Transportation 6: Implement parking management measures that may include:

- *Restricted permit availability;*
- *Restricted permit mobility;*
- *Differential permit pricing.*

PP 4.14-1 The campus shall continue to implement a Transportation Demand Management program that meets or exceeds all trip reduction and AVR requirements of the SCAQMD. The TDM program may be subject to

modification as new technologies are developed or alternate program elements are found to be more effective.

TRA-1 *During construction of Item No. 1 (as well as Item Nos. 2, 4, 5, 6, 7, and 12 (in part)), Parking Services shall redirect users of Lot 19 and Lot 25 to Lot 24. Signs shall be posted, prior to and throughout, advising of the temporary elimination and restricted access to disabled parking. The signage shall include a telephone contact number in order for disabled persons to obtain transport from Parking Services.*

TRA-2 *During construction of Item No. 12, a pedestrian path of travel shall be maintained to the Recreation facilities.*

TRANSPORTATION/TRAFFIC - *Would the project:*	**Potentially Significant Impact**	**Less Than Significant With Project-Level Mitigation Incorporated**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant Impact**	**No Impact**
g. Conflict with applicable policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?					✘

DISCUSSION

The proposed infrastructure Project would not increase the campus population, thus, would not generate a demand for public transit. Additionally, Project construction activities would not conflict with access or interrupt service at these transit stops. Therefore, no impact would occur in this regard. Refer to Response 6.12(a) for a discussion of the Project's potential for growth-inducing impacts.

6.16 UTILITIES

BACKGROUND

Potential impacts to utilities as a result of full implementation of the 2005 LRDP were evaluated in Section 4.15 (Utilities) of the 2005 LRDP EIR (Pages 4.15-1 through 4.15-32). The proposed Project is within the scope of the analysis presented in the 2005 LRDP EIR.

The PSs and PPs regarding utilities adopted with the 2005 LRDP EIR that are applicable to the proposed Project are listed following each discussion below. (Refer to Appendix 11.1 for the full text.)

UTILITIES - *Would the project:*	**Potentially Significant Impact**	**Less Than Significant With Project-Level Mitigation Incorporated**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant Impact**	**No Impact**
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				✘	

DISCUSSION

The UCR campus operates its own on-site wastewater collection system. The sanitary sewer system consists of a network of four-, six-, and eight-inch-diameter lines. These campus-owned and maintained, underground gravity flow sewer lines are connected to sanitary sewer lines owned and maintained by the City of Riverside.

The Sewerage Systems Services Program, and its Treatment Services unit, administered by the City of Riverside Public Works Department, provides for the collection, treatment, and disposal of all wastewater generated within UCR (and the City of Riverside). Treatment of all campus-generated wastewater is provided at the City of Riverside Regional Water Quality Control Plant (RRWQCP), which is responsible for all State and federal requirements governing the treatment and discharge of wastewater, including applicable Waste Discharge Requirements established by the SARWQCB. The RRWQCP currently treats 32 million gallons per day (mgd) and has a capacity of 40 mgd.

According to the LRDP EIR, implementation of the 2005 LRDP would result in the development of new buildings and facilities that would increase the amount of wastewater generated by the campus. Future wastewater discharged by the UCR campus (an approximate increase of 0.9 MGD) would be treated at the RRWQCP, which does not anticipate any treatment capacity problems, and thus is anticipated to continue to comply with all wastewater treatment requirements of the SARWQCB. However, the increased wastewater flows generated by implementation of the LRDP could result in exceeding the sewer line capacities. The construction of new wastewater conveyance facilities or expansion of existing conveyance facilities on and off campus, or expanded water conservation measures may be required to ensure that new development is supported. The analysis concluded that with implementation of the relevant LRDP PS and PP, this impact would be less than significant.

The proposed infrastructure improvements would not directly generate wastewater, inasmuch as they would not involve new development. However, the Project would indirectly generate wastewater in that the proposed infrastructure would allow the campus to construct new buildings and facilities (i.e., a net increase of approximately 7.1 million gsf) that would accommodate more students, faculty, etc. The impacts to wastewater facilities associated with this potential future growth were analyzed in the LRDP EIR and concluded to be less than significant. The proposed infrastructure is being sized to accommodate this growth, but not exceed it.

Continued compliance with existing PS and PP would ensure that the applicable wastewater treatment requirements of the SARWQCB associated with full implementation of the LRDP would not be exceeded and less than significant impacts regarding wastewater generation would occur.

According to the LRDP EIR, the campus is not considered a point-source of water pollution for regulatory purposes and is not currently subject to any Waste Discharge Requirements established by the Santa Ana Regional Water Quality Control Board (SARWQCB). Additionally, no hazardous wastes are discharged into the sewer or storm drainage system on campus. Although there are no wastewater treatment requirements of the SARWQCB applicable to the UCR campus, PP 4.8-1 states that the campus would be required to comply with all applicable water quality requirements established by the Santa Ana Regional Water Quality Control Board.

PP 4.8-1: The campus will continue to comply with all applicable water quality requirements established by the SARWQCB.

UTILITIES - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
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?				✘	

DISCUSSION

Domestic Water

The domestic water system at UCR consists of an underground distribution system, a pumping system, storage tanks, and interconnections to the City of Riverside's water distribution system. Domestic water supply to the East Campus is provided via the City of Riverside's five-million-gallon (MG) reservoir located south of University Avenue, immediately east of the I-215/SR-60 freeway. Water from this reservoir is pumped via a below-grade pumping station into the campus distribution system and two campus-owned storage tanks (one 1 MG capacity and one 50,000-gallon capacity). This domestic water system also provides fire protection water. Fire hydrants located around the campus are connected to the water mains.

The infrastructure required to support future buildings in the area north of North Campus Drive, which includes the domestic water system, does not currently exist in this area. Additionally, the existing water line in area of Canyon Crest Road and North Campus Drive is not adequate to meet future domestic water needs or meet future fire flow requirements. Proposed infrastructure Item No. 3 would provide a new 12-inch domestic water line and a six-inch branch service. The new 12-inch line would complete the campus water loop along North Campus Drive and provide water for buildings on north side of North Campus Drive. This line would also increase fire flow capacity to the north and east side of campus.

UCR uses chilled water for air cooling. Currently, the central chilled water system that serves the East Campus academic core is powered by electricity. This system consists of a central chiller plant, a two-million gallon TES tank (i.e., TES #1), and a distribution system that pumps chilled water to most of the buildings within the core. An additional 2.7 million gallon TES tank was subsequently added (TES Tank #2). A Satellite Chiller Plant and related utility piping Infrastructure have recently been constructed. These improvements increased the chilled water capacity for the East Campus to service buildings currently under construction, and enhance the campus' TES system and chilled water management capabilities.

In response to planned enrollment increases and program growth, UCR plans to develop an area immediately north of North Campus Drive (currently used for athletic fields and the site of the MS&E Building) to support additional new academic buildings. The infrastructure required to support future buildings in this area, which includes chilled water (as well as steam, domestic and potable water), does not currently exist north of North Campus Drive. Proposed Infrastructure Item No. 1 would extend a chilled water supply line and return, in order to provide

chilled water for the buildings proposed north of North Campus Drive, in the existing soccer field. A manhole, holding all utilities, would be located in the center of the proposed courtyard. Utilities would then be extended to each building, as it is being built without trenching in the roadway.

Infrastructure Item No. 9 proposes one 2,000-ton chiller with two pumps, two cell-cooling towers, one 2.7-million gallon TES Tank (adjacent to existing TES Tank #2), and one TES pump and one condenser water pump (within a small building).

This project would increase the chiller and TES capacity to meet projected new building cooling loads through 2011. Proposed TES Tank #3 would allow the Steam Plant/Central Utility Plant to cool the campus during on-peak hours without the operation of the electric chillers. Chillers are run at night, off-peak, to chill water for use during on-peak hours. This would allow the campus to maintain the favorable electric rates from the local utility and desired economy of operations. In addition, the added capacity would provide backup service for exceptionally high periods of demand. The tank would be filled with potable water, and since it is a "semi"-closed system, the water would circulate. New water would be added only as needed due to losses, mostly due to evaporation.

In consideration of the proposed improvements to the campus' water systems, as described above, Project implementation would result in beneficial impacts. Refer also to Response 6.16(c) for a discussion of potential impacts associated with water demand.

Wastewater

Refer also to Response 6.16(a) for a discussion of potential impacts associated with wastewater generation. The infrastructure required to support future buildings in the area north of North Campus Drive, which includes the sanitary sewer system, does not currently exist in this area. This proposed improvement would provide a new eight-inch sewer water line and two new manholes. Proposed infrastructure Item No. 4 would provide sanitary sewer for the buildings proposed on the north side of North Campus Drive in the existing soccer field. A manhole for all utilities would be located in the center of the proposed courtyard. Utilities would then be extended to each building as it is being built without trenching in the roadway.

UTILITIES - *Would the project:*	**Potentially Significant Impact**	**Less Than Significant With Project-Level Mitigation Incorporated**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant Impact**	**No Impact**
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?					✘

DISCUSSION

Refer to Responses 6.8(c) and 6.8(d) for a discussion of potential drainage impacts.

UTILITIES - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				✘	

DISCUSSION

The City prepared a Water Supply Assessment (WSA) for informational purposes for the 2005 LRDP. The WSA addressed the adequacy of the City of Riverside's water supplies over the LRDP planning horizon based on the City's 2001 Urban Water Management Plan (UWMP) and additional supply information developed for the WSA. The City's total projected water supplies (including groundwater) available during normal, single dry, and multiple dry years during a 20-year period, are adequate to meet the projected water demand resulting from implementation of the 2005 LRDP. By 2015, the City's anticipated surplus is projected at 28,100 acre-feet per year. With implementation of the applicable LRDP PS and continued implementation of existing campus PP, implementation of the 2005 LRDP would not result in the need for new or expanded water supply entitlements, as there are sufficient water supplies to serve the LRDP from existing entitlements and resources.

Infrastructure Item No. 9 would create a demand for water, in order to operate the proposed chiller. Similarly, Infrastructure Item No. 10 would create a demand for water, in order to operate the proposed boiler. However, these facilities are proposed in order to operate the existing plants more efficiently.

The proposed infrastructure improvements would not directly generate a demand for water, inasmuch as they would not involve new development. However, the Project would result in indirect increases in demands for water in that the proposed infrastructure would allow the campus to construct new buildings and facilities (i.e., a net increase of approximately 7.1 million gsf) that would accommodate more students, faculty, etc. The impacts to water demand associated with this potential future growth were analyzed in the LRDP EIR and concluded to be less than significant. The proposed infrastructure is being sized to accommodate this growth, but not exceed it. Further, additional CEQA review will be performed if and when projects in the area of Canyon Crest Road and North Campus Drive are proposed.

Continued implementation of existing PS and PP reduces potential impacts associated with increased water demands to less than significant.

PS Conservation 5: Continue to adhere to the conservation requirements of Title 24 of the California Code of Regulations and comply with any future conservation goals or programs enacted by the University of California.

PP 4.15-1(a) Improvements to the campus water distribution system, including necessary pump capacity, will be made as required to serve new projects. Project-specific CEQA analysis of environmental effects that would occur prior to project-specific approval will consider the continued adequacy of the domestic/fire water systems, and no new development would occur without a

demonstration that appropriate domestic/fire water supplies continue to be available.

PP 4.15-1(b) To further reduce the campus' impact on domestic water resources, to the extent feasible, UCR will:

(i) Install hot water recirculation devices (to reduce water waste);
(ii) Continue to require all new construction to comply with applicable State laws requiring water-efficient plumbing fixtures, including but not limited to the Health and Safety Code and Title 24, California Code of Regulations, Part 5 (California Plumbing Code);
(iii) Retrofit existing plumbing fixtures that do not meet current standards on a phased basis over time;
(iv) Install recovery systems for losses attributable to existing and proposed steam- and chilled-water systems;
(v) Prohibit using water as a means of cleaning impervious surfaces;
(vi) *Install water-efficient irrigation equipment to local evaporation rates to maximize water savings for landscaping and retrofit existing systems over time.*

PP 4.15-1(c) The campus shall promptly detect and repair leaks in water and irrigation pipes.

PP 4.15-1(d) The campus shall avoid serving water at food service facilities except upon request.

UTILITIES - *Would the project:*	**Potentially Significant Impact**	**Less Than Significant With Project-Level Mitigation Incorporated**	**Project Impact Adequately Addressed in LRDP EIR**	**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 projects projected demand in addition to the providers existing commitments?				✘	

DISCUSSION

Refer to Response 6.16(a) for a discussion of potential impacts associated with wastewater.

16. UTILITIES - *Would the project:*	**Potentially Significant Impact**	**Less Than Significant With Project-Specific Mitigation Incorporated**	**Project Impact Adequately Addressed in LRDP EIR**	**Less Than Significant Impact**	**No Impact**
f. Be served by a landfill with sufficient permitted capacity to accommodate the projects solid waste disposal needs?				✘	

DISCUSSION

The LRDP EIR concluded development under the LRDP would generate solid waste, but not enough to require the expansion of the permitted capacity of a regional landfill (LRDP EIR Page 4.15.19). This impact would be less than significant.

The proposed infrastructure improvements would not directly generate solid waste, inasmuch as they would not involve new development. However, the Project would indirectly generate solid waste in that the proposed infrastructure would allow the campus to construct new buildings and facilities (i.e., a net increase of approximately 7.1 million gsf) that would accommodate more students, faculty, etc. The impacts from solid waste generation associated with this potential future growth were analyzed in the LRDP EIR and concluded to be less than significant. The proposed infrastructure is being sized to accommodate this growth, but not exceed it.

UTILITIES - *Would the project:*	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
g. Comply with applicable federal, state, and local statutes and regulations related to solid waste?				✘	

DISCUSSION

Construction of the proposed infrastructure improvements would comply with applicable federal, State, and local statutes and regulations related to solid waste, and this impact would be less than significant.

6.17 MANDATORY FINDINGS OF SIGNFICANCE

MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	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, 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?				✘	

DISCUSSION

As discussed in Response 6.4(a), most of the proposed improvements would occur within previously developed/disturbed areas or within existing buildings, therefore, would not impact biological resources. Although, the eastern extreme of the proposed domestic water line (i.e., Item No. 3) would traverse a Naturalistic Open Space area, no impact to biological resources

would occur in this regard, because this pipeline is proposed within the North Campus Drive ROW. Item No. 9 (i.e., TES Tank #3 and pump building) would also be located in a previously disturbed area, but adjacent to a Natural Open Space Reserve area that exists to the south. Due to the proposed tank site's proximity to the adjacent Natural Open Space Reserve, and in order to avoid potential adverse impacts to candidate, sensitive, or special-status plant and wildlife species, design of the this improvement has been guided by PS Open Space 1, 2, and 3. Additionally, TES Tank #3 has been sensitively sited in that it is proposed in the lower slopes of the southeast hills and would be recessed into the hillside (with only the upper portion visible). Continued implementation of PP 4.4-1(b) further protects and reduces potential disturbance to the adjacent Natural Open Space Reserve. Potential impacts to sensitive biological resources would be less than significant. Therefore, the proposed Project would not 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, or reduce the number or restrict the range of a rare or endangered plant or animal.

With the exception of Item No. 10, none of the proposed infrastructure improvements would have the potential to impact potentially historic buildings. Item No. 10 is proposed within the Steam Plant/Central Utility Plant Building, which is identified as potentially historic. Item No. 10 involves installation of improvements that would be limited to the interior of the structure, which is currently utilized for steam supply and condensate return systems. Further, no modifications to the building's internal structure are proposed. Additionally, no modifications that would alter the structure's character-defining features or setting are proposed. Project implementation would not cause a substantial adverse change in the significance of a historical resource (i.e., Steam Plant/Central Utility Plant Building), and any potential impacts to this structure would be less than significant. Therefore, Project implementation would not eliminate important examples of the major periods of California history or prehistory.

Additionally, the Project could indirectly impact biological or cultural resources in that the proposed infrastructure would facilitate campus development consistent with the LRDP, including new buildings and facilities (i.e., a net increase of approximately 7.1 million gsf) that would accommodate more students, faculty, etc. The impacts to biological and cultural resources associated with this potential future growth were analyzed in the LRDP EIR and concluded as being less than significant. The proposed infrastructure is being sized to accommodate this growth, but not exceed it. Continued implementation of the LRDP PSs and PPs would ensure that potential impacts to biological and cultural resources would be less than significant.

MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less Than Significant With Project-Specific Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			✘		

DISCUSSION

As described in the 2005 LRDP EIR, full implementation of the 2005 LRDP would result in cumulatively considerable contributions to construction and operational air quality and construction and operational traffic impacts. As described in Section 4.2 (Air Quality) of the 2005 LRDP EIR, the 2005 LRDP would significantly contribute to construction and operational related air quality impacts with respect to criteria pollutants assuming full development allowed under the 2005 LRDP and other development projects foreseen in the region. Section 4.14 (Transportation and Traffic) of the LRDP EIR concluded that full implementation of the 2005 LRDP would significantly contribute to operational traffic impacts to three intersections and would also significantly contribute to cumulative constriction related traffic impacts.

The 2005 LRDP EIR concluded that full implementation of the 2005 LRDP would not result in a cumulatively considerable contribution to any other environmental category.

As previously described in Section 6.3 of this Initial Study, potential construction related air emissions of criteria pollutants for the proposed Project are within projections contained in the 2005 LRDP EIR. Previously adopted LRDP PPs, as listed in Appendix 11.1 would be implemented for the proposed Project. While there are several projects underway and/or scheduled to be in construction in the campus core, construction of the proposed Project would occur at the same time as only one other scheduled major construction project in the immediate vicinity. The new Materials Science & Engineering (MS&E) Building is currently under construction in an area immediately north of North Campus Drive currently used for athletic fields. With the inclusion of the above referenced 2005 LRDP EIR PPs, the proposed Project's contribution to cumulative air emissions with respect to criteria pollutants, combined with the MS&E project, would be less than significant.

As previously discussed, the proposed infrastructure improvements would not directly generate vehicular trips or create a demand for parking, inasmuch as they would not involve new development. However, the Project would indirectly generate increases in vehicular trips and parking demands in that the proposed infrastructure would facilitate campus development consistent with the LRDP, including new buildings and facilities (i.e., a net increase of approximately 7.1 million gsf campus-wide) that would accommodate more students, faculty, etc. The increased trip generation and parking demand associated with this potential future growth were analyzed in the LRDP EIR and concluded as being less than significant. The proposed infrastructure is being sized to accommodate this growth, but not exceed it.

MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less Than Significant With Project-Level Mitigation Incorporated	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant Impact	No Impact
c. Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?				✘	

DISCUSSION

The proposed Project is consistent with 2005 LRDP and the analysis presented in the 2005 LRDP EIR. As addressed in the environmental analysis for each topical issue presented in this Initial Study, the proposed Project would not result in any significant impacts, including impacts that would cause substantial adverse effects on human beings, either directly or indirectly. As it has been determined that the proposed Project would have no impact or a less than significant impact for all of the respective environmental issues, no additional analysis is required.

FISH AND GAME DETERMINATION:	Yes (Certificate of Fee Exemption)	No (Pay Fee)
Based on the information above, there is no evidence that the Project has a potential for a change that would adversely affect wildlife resources or the habitat upon which the wildlife depends. The presumption of adverse effect set forth in 14 CCR 753.5 (d) has been rebutted by substantial evidence.		✘

7.0 DETERMINATION

(To be completed by the Lead Agency)

On the basis of the initial evaluation presented above, I find that:

_____	The proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
✘	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.
_____	The proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
_____	The proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. A TIERED ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
_____	Although the proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, no further environmental document is required. FINDINGS consistent with this determination will be prepared.

Signature	March 31, 2009 **Date**
Tricia D. Thrasher, ASLA **Printed Name**	University of California, Riverside **For**

8.0 PROJECT MITIGATION MEASURES

8.1 INVENTORY OF MITIGATION MEASURES

GEOLOGY AND SOILS

GEO-1 Prior to UCR approval/acceptance of Construction Drawings and Specifications, the design Structural Engineer and/or Civil Engineer shall certify that the Project was designed to comply with each of the recommendations detailed in the Geotechnical Investigation Thermal Energy Storage Expansion and Satellite Plant University of California Riverside (C. H. J., Incorporated, August 31, 2001), Subsurface Investigation Proposed Thermal Energy Storage Tanks University of California Riverside (C. H. J., Incorporated, November 8, 2001), and the Ground Motions Thermal Energy Storage Expansion UC Riverside Campus, (C. H. J., Incorporated, November 28, 2001), and any other such measure(s) as UCR deems necessary to adequately mitigate Project impacts.

TRANSPORTATION AND TRAFFIC

TRA-1 During construction of Item No. 1 (as well as Item Nos. 2, 4, 5, 6, 7, and 12 (in part)), Parking Services shall redirect users of Lot 19 and Lot 25 to Lot 24. Signs shall be posted, prior to and throughout, advising of the temporary elimination and restricted access to disabled parking. The signage shall include a telephone contact number in order for disabled persons to obtain transport from Parking Services.

TRA-2 During construction of Item No. 12, a pedestrian path of travel shall be maintained to the Recreation facilities.

8.2 MITIGATION MONITORING AND REPORTING PROGRAM

INTRODUCTION

The California Environmental Quality Act (CEQA) requires that when a public agency completes an environmental document which includes measures to mitigate or avoid significant environmental effects, the public agency must adopt a reporting or monitoring program for the changes to the Project which it has adopted or made a condition of Project approval in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program must be designed to ensure compliance during Project implementation (Public Resources Code Section 21081.6).

The Final Initial Study/Mitigated Negative Declaration (IS/MND) for the East Campus Infrastructure Improvements, Phase 2 (ECII2) (State Clearinghouse number 2009041007) includes three project specific mitigations measures along with four applicable 2005 Long Range Development Plan (LRDP) Final EIR (SCH 2005041164) mitigation measures (MMs), as well as campus planning strategies (PSs) and programs and practices (PPs) that currently reduce environmental impacts.

Following adoption of the IS/MND, the 2005 LRDP FEIR PSs, PPs, and MMs incorporated by the ECII2 project will continue to be monitored under the existing 2005 LRDP Mitigation Monitoring Program (MMP). In addition, the University of California, Riverside (UCR) Office of Design & Construction (ODC) will coordinate monitoring the implementation of the three project specific mitigation measures, and in conjunction with the 2005 LRDP MMP, the four applicable LRDP MMs for the ECII2 Project. Monitoring will include: (1) verification that each mitigation measure has been implemented; (2) recordation of the verification and any necessary notations regarding implementation of each mitigation measure; and (3) retention of records in the ECCII2 Project Mitigation Monitoring file.

PURPOSE

A listing of the project specific and four applicable 2005 LRDP mitigation measures incorporated by the Project is provided in this MMP. All applicable 2005 LRDP PSs, PPs and MMs, to be monitored under the existing 2005 LRDP MMP are listed in Appendix 11.1 if the Final ECII2 IS/MND.

The objectives of the MMP for the ECII2 include the following:

- To provide assurance and documentation that mitigation measures are implemented as planned;
- To provide information to assist the campus administration in understanding the effectiveness of the adopted mitigation measures;
- To maintain a campus record of compliance with Project mitigation measures.

The implementation of the mitigation measures applicable to the Project shall be performed and monitored by the campus staff, consultants and appropriate agencies in conjunction with project implementation and the on-going 2005 LRDP EIR MMP during project development phases as follows:

- Development of the design
- Preparation of Construction Contracts
- Construction phase
- Project operation

By including both monitoring and reporting provisions, the campus has voluntarily exceeded the minimum requirements of the Public Resources Code Section 21081.6, which allows selection of monitoring or reporting, but does not require both.

PROJECT OVERVIEW

The Project is located on the campus of the University of California, Riverside, (UCR) in the northeastern portion of the City of Riverside. The City of Riverside is located in western Riverside County, approximately 20 miles east of Los Angeles. Regional access to the UCR is provided via Interstate 215/State Route 60, which bisect the Campus in a north-east orientation.

The project involves various site in the UCR's East Campus, which is located west of the Interstate 215/State Route 60 (I-215/SR60), as well as one site in the West Campus, which is located west of I215/SR60. The sites consist primarily of roadways and athletic fields.

The proposed Project is fully described in Section 4 of the IS/MND. The proposed ECII2 Project would address a series of critical utility requirements by:

- Improving existing 12kV electrical services to support short- and long-term building growth and providing reliable and increased capacity to four existing buildings.

- Increasing heating capacity to the East Campus by installing one 50,000-pound per hour boiler and two 100,000-pound per hour deaerators.

- Enhancing chilled water capacity by installing a 2,000-ton chiller and an additional 2.7-million gallon Thermal Energy Storage (TES) Tank.

- Extending utility distribution service to a currently undeveloped area north of North Campus Drive, including potable and domestic water, steam, chilled water, sanitary sewer, and 12kV electrical systems.

Construction of the proposed ECII2 Project would occur over an approximately 18-month period and is expected to commence in late 2009.

RESPONSIBILITIES AND DUTIES

The Environmental Project Manager from UCR Facilities, Office of Design and Construction, would be responsible for coordinating the reporting of compliance with the mitigation measures listed in this MMP. These responsibilities include:

- Coordination with the Project Manager to ensure that design and construction contracts contain the relevant mitigation measures adopted in the Final IS/MND, and that these mitigation measures are implemented during the design and construction phases of the project.

- Coordination with the Project Inspectors to assure compliance and reporting during the construction phase of the project.

- Coordination and assistance to other Campus units and/or Departments with monitoring and reporting responsibilities to ensure that they understand their charge and complete their reporting procedures accurately and on schedule, during construction and on-going project operations.

IMPLEMENTATION AND MONITORING PROCEDURES

In general, monitoring would consist of the responsible units verifying that the relevant mitigation measures were implemented.

Reporting consists of establishing a record that a mitigation measure is being implemented, and generally involves the following steps:

- ODC distributes reporting forms to the appropriate responsible entity or employs the entity's existing reporting procedures for verification of compliance.

- Responsible entities verify compliance and document compliance by signing the monitoring form and/or documenting compliance using their own internal procedures when monitoring is triggered.

- Responsible entities provide ODC with verification that monitoring has been conducted and ensure, as applicable, that mitigation measures have been implemented.

The project-specific reporting forms prepared by ODC document the implementation status of the mitigation measures for the Project. Project reporting forms and documentation will be available at ODC, upon request, during normal business hours.

Applicable 2005 LRDP PSs, PPs and MMs, that are incorporated as part of this project, will continue to be monitored under the existing 2005 LRDP MMP and reporting will be done through that established process.

LIST OF APPLICABLE 2005 LRDP EIR MITIGATION MEASURES

The following summary table lists the project specific Mitigation Measures, applicable 2005 LRDP FEIR MMs adopted for the ECII2 project, as well as the timing and responsible entities for their implementation, monitoring, and reporting.

EAST CAMPUS INFRASTRUCTURE IMPROVEMENTS, PHASE 2
MITIGATION MONITORING AND REPORTING SUMMARY

Impact	Mitigation Measures	Responsible Entity	Monitoring Triggers	Frequency of Reporting	Verification of Compliance		
					Signature	Date	Remarks
Air Quality							
The Project could violate an air quality standard or contribute substantially to an existing or projected air quality violation.	**LRDP MM 4.3-3** To reduce energy consumption and area wide emission of criteria pollutants, the campus shall annually inspect and enforce an emissions reduction control strategy, which may include, where feasible, the following: Design ▪ Use light-colored roof materials to reduce heat gain. ▪ Orient buildings to the north and include passive solar design features. ▪ Increase building and attic insulation beyond Title 24 requirements. ▪ Provide electric vehicle charging systems at convenient location in campus parking facilities. ▪ Provide prominent website and/or kiosks displaying information about alternative transportation programs. ▪ Install electrical outlets outside buildings for the use of electric landscape maintenance equipment.				Monitored as part of the 2005 LRDP Mitigation Monitoring and Reporting Program		

Monitoring Triggers
1. Design stage 2. Construction documents 3. Construction 4. Commencement of occupancy 5. On-going through Project operation

Responsible Entities
ODC – Office of Design & Construction EH&S – Environmental Health & Safety Office TAPS – Transportation and Parking Services

Impact	Mitigation Measures	Responsible Entity	Monitoring Triggers	Frequency of Reporting	Verification of Compliance		
					Signature	Date	Remarks
	Operation ▪ Implement a subsidized vanpool program. ▪ Implement staggered or compressed work schedules to reduce vehicular traffic. ▪ Use alternative fuel shuttle buses to reduce intra-campus vehicle trips. ▪ Provide shuttle service to major off-campus activity centers and Metrolink station(s). ▪ Aggressive expansion of the campus TDM program to achieve an AVR of 1.5. ▪ Expand transit subsidies to encourage use of public transit. ▪ Implement incentives for telecommuting. ▪ Convert campus fleet to low emission, alternative fuel, and electric vehicles over time. ▪ Implement solar or low-emission water heaters. ▪ Implement an educational program for faculty and staff and distribute information to students and visitors about air pollution problems and solutions.						

Monitoring Triggers
1. Design stage 2. Construction documents 3. Construction 4. Commencement of occupancy 5. On-going through Project operation

Responsible Entities
ODC – Office of Design & Construction EH&S – Environmental Health & Safety Office TAPS – Transportation and Parking Services

Impact	Mitigation Measures	Responsible Entity	Monitoring Triggers	Frequency of Reporting	Verification of Compliance		
					Signature	Date	Remarks
Geology and Soils							
The Project could expose people or structures to potential substantial adverse effects, due to strong seismic shaking, seismic-related ground failure, and landslides in relation to the TES Tank #3 portion of the Project.	**GEO-1** Prior to UCR approval/acceptance of Construction Drawings and Specifications, the design Structural Engineer and/or Civil Engineer shall certify that the Project was designed to comply with each of the recommendations detailed in the Geotechnical Investigation Thermal Energy Storage Expansion and Satellite Plant University of California Riverside (C.H.J., Incorporated, Nov. 8, 2001), and the Ground Motions Thermal Energy Storage Expansion UC Riverside Campus, (C.H.J., Incorporated, Nov.2 8, 2001), and any other such measures(s) as UCR deems necessary to adequately mitigate Project impacts.	ODC	2	One time			

Monitoring Triggers
1. Design stage 2. Construction documents 3. Construction 4. Commencement of occupancy 5. On-going through Project operation

Responsible Entities
ODC – Office of Design & Construction EH&S – Environmental Health & Safety Office TAPS – Transportation and Parking Services

Impact	Mitigation Measures	Responsible Entity	Monitoring Triggers	Frequency of Reporting	Verification of Compliance		
					Signature	Date	Remarks
Hazards and Hazardous Materials							
Project could result in construction areas obstructing designated evacuation assembly areas for a period of time.	**LRDP MM 4.7-7(a)** Evacuation zones designated in the UCR Emergency Operations Plan will be avoided, to the extent feasible, when siting construction staging areas. Where evacuation zones cannot be avoided, alternative evacuation zones shall be identified. UCPD and the Riverside Fire Department shall be notified of alternative evacuation zones so that they can respond accordingly to any emergencies.	ODC and EH&S (Campus Fire Marshal)	2 3	One time One time, at the beginning			
The TES Tank #3 portion of the Project could expose structures to a risk of loss due to wildland fires.	**LRDP MM 4.7-8(a)** Provide landscaping around development areas adjacent to preserved open space that emphasizes native or traditional plant material where appropriate and provides a transition to developed areas in a manner that minimizes dense vegetation immediately adjacent to structural development. Landscaping shall be shown on building plans, and plans shall be reviewed and approved for conformance with this measure prior to project design approval and project-specific construction documents.	ODC	1 2	One time, each			

Monitoring Triggers
1. Design stage 2. Construction documents 3. Construction 4. Commencement of occupancy 5. On-going through Project operation

Responsible Entities
ODC – Office of Design & Construction EH&S – Environmental Health & Safety Office TAPS – Transportation and Parking Services

Impact	Mitigation Measures	Responsible Entity	Monitoring Triggers	Frequency of Reporting	Verification of Compliance		
					Signature	Date	Remarks
	LRDP MM 4.7-8(b) Implement annual fuel management procedures to maintain a firebreak between the undeveloped areas and structures.				Monitored as part of the 2005 LRDP Mitigation Monitoring and Reporting Program		
Transportation and Traffic							
The Project could result in the temporary elimination of on-campus parking spaces during project elements 1, 2, 4, 5, 6, 7, 12.	**TRA-1** During construction of Item No. 1 (as well as Item Nos. 2, 4, 5, 6, 7, and 12 (in part)), Parking Services shall redirect users of Lot 19 and Lot 25 to Lot 24. Signs shall be posted, prior to and throughout, advising of the temporary elimination and restricted access to disabled parking. The signage shall include a telephone contact number in order for disabled persons to obtain transport from Parking Services.	TAPS ODC	3 3	Once, prior to start Periodically for the duration of the cited project elements			
	TRA-2 During construction of Item No. 12, a pedestrian path of travel shall be maintained to the Recreation facilities.	ODC	3	Periodically for the duration of project element 12			

Monitoring Triggers
1. Design stage 2. Construction documents 3. Construction 4. Commencement of occupancy 5. On-going through Project operation

Responsible Entities
ODC – Office of Design & Construction EH&S – Environmental Health & Safety Office TAPS – Transportation and Parking Services

9.0 REFERENCES

9.1 PERSONS CONSULTED

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9.2 SUPPORTING DOCUMENTS

The following reference materials were utilized during preparation of the Initial Study. These reference documents are available for review at the University of California, Riverside, Office of Design and Construction.

- A Phase I Cultural Resources Investigation of the Proposed Chiller Plant, Tank, and Pipeline System on the University of California Riverside Campus, McKenna et al., November 15, 2001.

- California Environmental Quality Act, (Public Resources Code Sections 21000 through 21177) and Guidelines (Public Code Sections 15000 through 15387) as revised. Ceres.ca.gov/ceqa

- Completion of the Archaeological/Paleontological Monitoring Program at the "TES" Site, McKenna et al., April 22, 2002.

- CEQA Air Quality Handbook, South Coast Air Quality Management District, revised November 1993.

- Geotechnical Investigation Thermal Energy Storage Expansion and Satellite Plant University of California Riverside, C. H. J., Incorporated, August 31, 2001.

- Ground Motions Thermal Energy Storage Expansion UC Riverside Campus, C. H. J., Incorporated, November 28, 2001.

- Initial Study for the Thermal Energy Storage Expansion and Satellite Plant, University of California, Riverside, November 26, 2001.

- Long Range Development Plan, University of California, Riverside, November 2005. Ucrapb.ucr.edu/capital_and_physicalplanning/documents/documents.html

- Long Range Development Plan Draft Environmental Impact Report, University of California, Riverside, November 2005. Ucrapb.ucr.edu/capital_and_physicalplanning/documents/documents.html

- Long Range Development Plan Final Environmental Impact Report, University of California, Riverside, November 2005. Ucrapb.ucr.edu/capital_and_physicalplanning/documents/documents.html

- Subsurface Investigation Proposed Thermal Energy Storage Tanks University of California Riverside, C.H.J. Incorporated, November 8, 2001.

- TES Expansion & Satellite Plant Monitoring Program, McKenna et al., October 23, 2002.

- UC CEQA Handbook 2001, University of California, July 17, 2001. www.ucop.edu/facil/ pd/CEQA-Handbook/index.html

- University of California, Riverside, Project Planning Guide, East Campus Infrastructure Improvements Phase 2, June 2006.

10.0 COMMENTS AND RESPONSES

No comments on the Draft Initial Study/Mitigated Negative Declaration were received.