

University of California Riverside

Environmental Health & Safety  
Expansion (Project #950456),  
Parking Lot 27 (Project #956452),  
and Related Corporation Yard  
Reorganization and Existing EH&S  
Buildings Re-Use

Draft Environmental Impact Report  
SCH NO. 2011061014

Prepared for  
University of California, Riverside  
Capital Programs  
Capital Resource Management

Prepared by  
Impact Sciences, Inc.  
555 12<sup>th</sup> Street, Suite 1650  
Oakland, CA 94607

December 2011

# **UC Riverside**

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### **Prepared for:**

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Capital Programs  
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# 1.0 INTRODUCTION

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This Draft Environmental Impact Report (EIR) has been prepared to provide an assessment of the potentially significant environmental effects of the proposed Environmental Health & Safety (EH&S) Expansion and Parking Lot 27 (proposed projects) and related Corporation Yard reorganization and existing EH&S buildings re-use (related projects). As required by the California Environmental Quality Act (CEQA), this Draft EIR (1) assesses the potentially significant environmental effects of the proposed projects, including cumulative impacts of the proposed projects in conjunction with other past, present, and probable future projects; (2) identifies feasible means of avoiding or substantially lessening significant adverse impacts; and (3) evaluates a range of reasonable alternatives to the proposed projects, including the No Project Alternative. The University of California (the University) is the “lead agency” for the projects evaluated in this Draft EIR. The Board of Regents of the University of California (The Regents) or its delegate has the principal responsibility for approving these projects.

## 1.1 PURPOSE OF THE EIR

The University of California, Riverside (UCR) has prepared this EIR on the proposed projects for the following purposes:

- To satisfy the requirements of CEQA (Public Resources Code, Sections 21000–21178), the *State CEQA Guidelines* (California Code of Regulations, Title 4, Chapter 14, Sections 15000–15387), and the University of California Guidelines for the Implementation of CEQA;
- To inform the general public; the local community; and responsible, trustee, and other public agencies of the nature of the proposed projects, their potentially significant environmental effects, feasible measures to mitigate those effects, and their reasonable and feasible alternatives;
- To enable The University to consider the environmental consequences of approving the proposed projects; and
- For consideration by responsible agencies in issuing permits and approvals for the proposed projects.

As described in CEQA and the *State CEQA Guidelines*, public agencies are charged with the duty to avoid or substantially lessen significant environmental effects, where feasible. In discharging this duty, a public agency has an obligation to balance the project’s significant effects on the environment with its benefits, including economic, social, technological, legal, and other benefits. This EIR is an informational document, the purpose of which is to identify the potentially significant effects of the proposed projects on the environment and to indicate the manner in which those significant effects can be avoided or significantly lessened; to identify any significant and unavoidable adverse impacts that cannot be mitigated; and to identify reasonable and feasible alternatives to the proposed projects that would

eliminate any significant adverse environmental effects or reduce the impacts to a less than significant level.

The lead agency is required to consider the information in the EIR, along with any other relevant information, in making its decisions on the proposed projects. Although the EIR does not determine the ultimate decision that will be made regarding implementation of the projects, CEQA requires the University to consider the information in the EIR and make findings regarding each significant effect identified in the EIR. The Regents or its delegate would certify the Final EIR prior to taking any action approving the proposed projects. Other agencies may also use this EIR in their review and approval processes.

## **1.2 SUMMARY OF THE PROPOSED PROJECTS**

UCR proposes to construct and operate a new single-story EH&S building that would be located in the northeast corner of the East Campus in Riverside, California. The proposed projects include construction of an approximately 27,265 gross-square-foot building and construction of a new parking lot with approximately 50 spaces. The proposed projects would consolidate existing EH&S functions in a single, new facility that would accommodate existing and projected future needs of the campus. Related projects would reorganize and relocate existing uses at the campus Corporation Yard, including demolition of two buildings and construction of a replacement warehouse, and relocate campus Mail Services and Printing and Reprographic Services from their existing locations on- and off-campus to the existing EH&S buildings.

## **1.3 ENVIRONMENTAL REVIEW PROCESS**

### **1.3.1 Type of EIR**

This is a project EIR prepared pursuant to Section 15161 of the *State CEQA Guidelines*. This EIR is tiered from the UCR 2005 Long Range Development Plan (LRDP) EIR (SCH 2005041164) as supplemented and updated by the UCR 2005 LRDP Amendment 2 EIR (SCH 2010111034) in accordance with Sections 15152 and 15183 of the *State CEQA Guidelines* and Public Resources Code Section 21094. The 2005 LRDP EIR is a Program EIR that was prepared by the University in 2005 pursuant to Section 15168 of the *State CEQA Guidelines*. The EIR analyzed the potential environmental effects from the development of the Campus under the 2005 LRDP through 2015 and identified measures to mitigate the significant adverse program-level and cumulative impacts associated with that development. The 2005 LRDP EIR was certified in November 2005, and the 2005 LRDP was adopted by the University at that time. The proposed projects are an element of campus growth that was envisioned in the 2005 LRDP.

In November 2011, the University approved the 2005 LRDP Amendment 2. This amendment designated land on the West Campus for the development of a School of Medicine, a project not envisioned in the 2005 LRDP. The amendment also extended the LRDP planning horizon year from 2015 to the 2020-2021 academic year and included changes to certain Planning Strategies and Programs and Practices intended to guide campus development and reduce or avoid impacts from development on campus; however, the intent of these revised Planning Strategies and Programs and Practices remained the same as under the 2005 LRDP. The 2005 LRDP Amendment 2 did not propose any land use changes or additional growth on the East Campus beyond what was projected under the 2005 LRDP.

By tiering from the 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR (2011), this EIR will rely on the previous EIRs for the following:

- a 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 and/or 2005 LRDP Amendment 2 EIR for which there is no significant new information or change in circumstances that would require further analysis; and
- assessment of cumulative impacts.

Because the proposed projects are elements of the growth projected under the 2005 LRDP, relevant mitigation measures identified in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR and adopted by The Regents in conjunction with the approval of the 2005 LRDP and 2005 LRDP Amendment 2 have been included in and made part of the EH EH&S Facility Expansion, Parking Lot 27, and related Corporation Yard and existing EH&S buildings re-use projects. These mitigation measures are listed in **Appendix 1.0**, and relevant mitigation measures are also listed in each resource subsection of **Section 4.0**. The analysis presented in **Section 4.0** evaluates environmental impacts that would result from project implementation following the application of these mitigation measures. These mitigation measures that are included in the projects would be monitored pursuant to the Mitigation Monitoring and Reporting Plan that will be adopted for the proposed projects.

### 1.3.2 Notice of Preparation and Scoping

A Notice of Preparation (NOP), including an Initial Study, was prepared and distributed to the State Clearinghouse, trustee agencies, responsible agencies, and other interested parties on June 3, 2011. Distribution of the Initial Study/NOP established a 30-day scoping period for the public and agencies to identify environmental issues that should be addressed in the Draft EIR. The Initial Study/NOP and comments on the NOP are included as **Appendix 1.0** of this EIR. Issues that were raised during the NOP



review period by the public and agencies are summarized in the subsections of **Section 4.0, Environmental Impact Analysis**, and are addressed in the analysis in each subsection.

An EIR scoping meeting was held at Bannockburn Room J-102 located at 3637 Canyon Crest Drive on the UCR campus on July 6, 2011. The purpose of this meeting was to inform the public, campus community, and interested agencies of the proposed projects, solicit comments, and identify areas of concern.

### **1.3.3 Publication of Draft EIR**

This Draft EIR is being circulated for review and comment to the public and other interested parties, agencies, and organizations for a 45-day review period as required by California law. During the review period, copies of the Draft EIR will be available for review during normal business hours at UCR Capital Programs, Capital Resource Management, 1223 University Avenue, Suite 200, Riverside, California 93507. Additionally, the draft EIR will be available for viewing and downloading online at [www.odc.ucr.edu](http://www.odc.ucr.edu).

In reviewing the Draft EIR, reviewers should focus on the document's adequacy in identifying and analyzing significant effects on the environment and ways in which the significant effects of the projects might be avoided or mitigated. To ensure inclusion in the Final EIR and full consideration by the lead agency, comments on the Draft EIR must be received during the public review period, which ends at 5:00 PM on January 23, 2012. Written comments on the EIR may be emailed to [ceqa@ucr.edu](mailto:ceqa@ucr.edu) or sent to:

UCR Capital Programs  
Capital Resource Management  
1223 University Avenue, Suite 200  
Riverside, California 92507  
Fax: (951) 827-2402  
Attn: Tricia D. Thrasher, ASLA, LEED AP

### **1.3.4 Publication of Final EIR**

Following the public hearing, and after the close of the written public comment period on the Draft EIR, responses to written and recorded comments will be prepared and published. The Final EIR, which will consist of the Draft EIR, comments on the Draft EIR, written responses to those comments, and the Mitigation Monitoring and Reporting Program (MMRP), will be forwarded to The Regents or its delegate for their consideration.

To consider approval of the proposed projects, Section 15090 of the *State CEQA Guidelines* requires The Regents or its delegate to certify that:

- The Final EIR has been completed in compliance with CEQA;

- The Final EIR was presented to The Regents or its delegate, and that The Regents or its delegate reviewed and considered the information contained in the Final EIR prior to approving the projects; and
- The Final EIR reflects the lead agency's independent judgment and analysis.

In conjunction with their certification of the Final EIR, The Regents or its delegate must also adopt written findings that address each significant adverse environmental effect identified in the Final EIR, consistent with Section 15091 of the *State CEQA Guidelines*. The Regents or its delegate must also adopt the MMRP to ensure implementation of mitigation measures that have been incorporated into the projects to reduce or avoid significant effects during project construction and/or implementation.

If feasible mitigations are not available to reduce significant environmental impacts to a less-than-significant level, those impacts are considered significant and unavoidable. If The Regents or its delegate elect to approve the proposed projects, and the proposed projects would have significant and unavoidable impacts, The Regents or its delegate will also be required to identify the specific reasons for approving the projects, based on the Final EIR and any other information in the public record. This "Statement of Overriding Considerations" would be incorporated into the Findings and would provide the specific reasons why the benefits of the proposed projects outweigh the unavoidable environmental effects that would result from development of the projects.

#### 1.4 SCOPE OF THIS EIR

UCR completed a preliminary review of the projects, as described in Section 15060 of the *State CEQA Guidelines*, and determined that an environmental review was required. UCR prepared an Initial Study in June 2011 and determined that an EIR was necessary. Based on the Initial Study and the comments received at the scoping meeting and in response to the NOP, it was determined that the EIR would evaluate the following environmental topics in further detail:

- |                                    |                                  |
|------------------------------------|----------------------------------|
| • Aesthetics                       | • Hydrology and Water Quality    |
| • Air Quality                      | • Land Use and Planning          |
| • Greenhouse Gas Emissions         | • Noise                          |
| • Hazards and Hazardous Materials; | • Transportation and Circulation |

## 1.5 REPORT ORGANIZATION

This Draft EIR is organized into the following sections:

**Section 1.0, Introduction**, provides an introduction and overview describing the purpose and scope of topics addressed in this EIR and the environmental review process.

**Section 2.0, Executive Summary**, summarizes environmental consequences that would result from the proposed projects, provides a summary table that denotes anticipated significant environmental impacts, describes identified mitigation measures, and indicates the level of significance of impacts before and after mitigation.

**Section 3.0, Project Description**, describes the proposed projects.

**Section 4.0, Environmental Impact Analysis**, describes the environmental setting, including applicable plans and policies; provides an analysis of the potential environmental impacts of the proposed projects; and identifies mitigation measures to reduce their significance. It also includes an evaluation of the projects' cumulative impacts.

**Section 5.0, Other CEQA Considerations**, summarizes alternatives to the projects and the comparative environmental consequences of each alternative. This section includes an analysis of the No Project Alternative, among others, as required by CEQA.

**Section 6.0, Alternatives**, provides a discussion of the projects' significant and unavoidable impacts, the potential for growth inducement from the projects, and a brief description of the environmental effects that were found not to be significant and, therefore, not evaluated in further detail.

**Section 7.0, List of Preparers**, provides a list of the individuals involved in the preparation of this EIR.

**Section 8.0, References**, provides a list of documents and other references used in the preparation of this EIR.

## 2.0 EXECUTIVE SUMMARY

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### 2.1 PURPOSE

This Draft Environmental Impact Report (EIR) evaluates the potential for significant environmental impacts from the approval and implementation of the proposed Environmental Health & Safety (EH&S) Expansion and Parking Lot 27 (proposed projects) and related Corporation Yard reorganization and existing EH&S buildings re-use (related projects) at the University of California, Riverside (UCR). It is the intent of this Executive Summary to provide the decision makers and the public with a clear, simple, and concise description of the proposed and related projects and their potential significant environmental impacts. Section 15123 of the *California Environmental Quality Act (CEQA) Guidelines* requires that the summary identify each significant effect, recommended mitigation measure(s), and alternatives that would minimize or avoid potential significant impacts. The summary is also required to identify areas of controversy known to the lead agency, including issues raised by agencies and the public and issues to be resolved. These issues include the choice among alternatives and whether or how to mitigate significant effects. This summary focuses on the major areas of importance in the environmental analysis for the proposed projects and uses non-technical language to promote understanding.

### 2.2 PROJECT LOCATION

The UCR campus is located in the City of Riverside, 1.5 miles east of downtown Riverside and just west of the Box Springs Mountains. The City of Riverside is located within the County of Riverside, in a larger geographic area known as the Inland Empire, which is composed of western Riverside and San Bernardino counties. The campus is generally bounded by Blaine Street, University Avenue and Everton Place and its extension west on the north, Watkins Drive and Valencia Hill Drive and its extension south on the east, a line extending east from Le Conte Drive on the south, and Chicago Avenue on the west. The campus is bisected diagonally by the I-215/SR-60 freeway. The campus area to the east of the freeway is called the East Campus and the area to the west is called the West Campus.

The proposed EH&S Expansion and Parking Lot 27 project site is located in the northeast portion of the East Campus, north of Linden Street, south of Watkins Drive, west of Valencia Hill Drive, and east of the UCR Corporation Yard and Transportation and Parking Services (TAPS) building. The Corporation Yard is located adjacent to the west of the proposed EH&S Expansion project site. The existing EH&S facility, which would be renovated subsequent to the construction of the EH&S Expansion building and reused as described below, is located in the southeastern part of the East Campus, at the intersection of South Campus Drive and East Campus Drive, east of the I-215/SR-60 freeway.

## 2.3 PROJECT DESCRIPTION

### 2.3.1 Proposed Projects

The proposed EH&S Expansion project includes construction of a new single-story EH&S building that would allow UCR to relocate the EH&S functions from their present location in the southeast area of the East Campus. The new EH&S Expansion facility is intended to provide a long-term, consolidated campus facility for all EH&S functions in a building designed using principles of environmental sustainability. The building would include approximately 27,265 gross square feet (gsf) of space, including about 18,674 assignable square feet (asf). The west wing of the building would be about 30 feet high and the east wing would be about 22 feet high. Uses would include about 6,823 asf of administrative/office space; 2,158 asf for a safety learning center, seating up to approximately 60 people; 1,358 asf of laboratories; and 8,335 asf of materials handling and storage space for chemical, radiation, biomedical, and universal waste and building support services. Outside yard areas, with an area of about 6,400 square feet, would house specialized storage containers and provide secure materials handling access. The proposed facility would be oriented east to west across the site, with materials handling, laboratories, and training areas in the western section of the building, administrative areas in the eastern section, and a central entrance lobby connecting the two sections. The exterior of the building would be finished primarily in brick, glass, concrete block, and stucco, compatible with existing campus buildings. The project's goals include meeting the University of California requirements for LEED® Silver or better certification.

The building would have a 750-kilowatt diesel emergency generator with a 600-gallon aboveground base-mounted fuel tank. The generator would be located within the secured yard and the exhaust vent would run to the roof, a minimum of 2 feet above the nearest parapet. The project would also include utility extensions. As part of the proposed EH&S Expansion project, the existing EH&S storage trailers would be relocated to the new secured EH&S yard located in the area north of the TAPS building south of Watkins Drive, adjacent to the west of the new EH&S Expansion building and they would continue to be used for their current purposes, including storage of potentially explosive compounds, radioactive waste, and universal waste.

Access to the EH&S Expansion facility would be from Linden Street, on the campus side of the facility. The pedestrian entrance for employees and visitors would face Linden Street and would be through a secure entry. The main vehicle entry and exit would be from Linden Street via a secure gate, and all daily campus waste pickup vehicles and periodic deliveries would use this entrance. A secured gate and driveway connecting to Watkins Drive would be provided for limited, occasional use by contracted licensed certified commercial waste off-haul trucks.

A new parking lot, Parking Lot 27, would be built at the east end of the proposed EH&S Expansion site to jointly serve the EH&S Expansion facility and the adjacent recreational fields. Approximately 50 parking spaces would be provided. Access to the lot would be via a driveway connecting to Linden Street.

Construction of the EH&S Expansion and Parking Lot 27 is expected to be complete by Fall 2014. The number of EH&S employees is projected to increase by about 8 employees, from 22 full-time equivalent (FTE) employees at the present time to approximately 30 FTE.

### 2.3.2 Related Projects

Because the proposed EH&S Expansion building and secured service yard would use a portion of the existing TAPS yard area, functions currently located in the TAPS yard would need to be relocated. Under the proposed reorganization, the Corporation Yard would accommodate the displaced TAPS uses while transferring some units currently located in the Corporation Yard to the existing EH&S building once it is vacated. Elements of the reorganization include the following:

- The Mail Services operations, currently located in the north-central portion of the Corporation Yard, would be relocated to the existing EH&S facility. The existing Mail Services building, which has an area of approximately 2,800 gsf, would be demolished.
- Corporation Yard Warehouse #2, which has an area of approximately 4,000 gsf, would be demolished because of its age and its construction, which does not meet current building standards. The materials stored inside Warehouse #2 would be relocated, as needed, to a new, replacement warehouse building of approximately 5,400 gsf to be constructed in the north-central portion of the Corporation Yard near the location of the current Mail Services operation.
- The TAPS/Special Events program storage and operations area currently located north of the TAPS building would be transferred to a replacement facility in the south-central portion of the Corporation Yard, at the current location of Warehouse #2. Support structures would be constructed at this location.

The existing EH&S facility would be renovated and backfilled by two functions that currently occupy space elsewhere. Mail Services, currently located at the Corporation Yard, would occupy the existing 2,400-square-foot EH&S modular building, after renovation. Printing & Reprographic Services, currently located off campus in a UC-owned building at 2100 Atlanta Avenue in Riverside, would occupy the existing 6,200-square-foot EH&S building after its renovation.

The renovation and reuse of the existing EH&S buildings and the Corporation Yard reorganization are expected to be completed by Fall 2016. There would be no increase in employees associated with the related projects.

## 2.4 PROJECT OBJECTIVES

The primary objectives of the proposed EH&S Expansion and Parking Lot 27 projects include the following:

- Provide a long-term, consolidated campus facility for all EH&S functions through the 2020-2021 LRDP planning horizon, including office space for 30 full-time equivalent (FTE) employees, laboratory space for analysis of waste characteristics, meeting rooms and facilities for safety training seminars, record keeping and preparation of hazardous materials assessments and manifests, and mitigation (reduction of hazardous characteristics of waste), collection and storage facilities, and processing areas for transport.
- Provide a building that will facilitate the critical services EH&S provides to the research, training, and administration community at UCR.
- Construct a building that is a model of environmental sustainability and in compliance with all State and federal health and safety standards.
- Provide a limited amount of nearby parking for EH&S staff and visiting regulators.
- Implement Planning Strategy Land Use 7, which calls for the Campus to relocate parking from central campus locations to the periphery of the academic core and replace surface parking with structures, where appropriate.
- Provide a facility proximate to on-campus generators to enable safe transport from generators to the EH&S facility in accordance with State and federal regulations, while ensuring access to off-campus haul routes.
- Consolidate and relocate Printing & Reprographic Services (P&R) and Mail Services into a single location that will better serve campus needs. P&R Services are currently located at an off-campus site; this program would better serve the campus at an on-campus location and equipment efficiency would be achieved by consolidating operations with Mail Services.
- Provide upgraded warehouse space and operational areas at the Corporation Yard.
- Consistent with campus planning principles, locate and design the proposed and related projects to represent optimal investment of land and capital in the future of the campus and to maximize and efficiently use available developable space on campus.

## 2.5 SCOPE OF THE EIR

To determine which environmental topics should be addressed in this EIR, UCR prepared an Initial Study and circulated it along with a Notice of Preparation (NOP) in order to receive input on the scope of the EIR from interested public agencies and private parties. Copies of the NOP and Initial Study are presented in **Appendix 1.0** of this EIR. Based on both the Initial Study and the NOP comments, this EIR addresses the following environmental topics in depth:

- Aesthetics
- Hydrology and Water Quality

- Air Quality
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Land Use and Planning
- Noise
- Transportation and Traffic

## 2.6 IMPACT SUMMARY

A detailed discussion regarding potential impacts is provided in **Section 4.0, Environmental Impact Analysis**. In accordance with the *State CEQA Guidelines*, a summary of the project's impacts is provided in **Table 2.0-1, Summary of Impacts and Mitigation Measures**, presented at the end of this section. Approval and adoption of the proposed projects could result in potentially significant environmental impacts related to noise and traffic. Some significant impacts would be reduced to less than significant levels through incorporation of mitigation measures. However, the projects would have residual significant impacts with regard to construction and cumulative operational noise. With the exception of cumulative operational noise, all other cumulative impacts would be less than significant.

## 2.7 ALTERNATIVES TO THE PROPOSED PROJECTS

The alternatives evaluated in this EIR focus on avoiding or further reducing potentially significant project-level and cumulative impacts. Project alternatives evaluated in this EIR include the following:

**Alternative 1: No Project.** Under the No Project Alternative, the proposed EH&S Expansion and Parking Lot 27 projects would not be built and the related projects (Corporation Yard reorganization and EH&S facility reuse) would not occur. The existing EH&S facility would remain in use and the functions at the Corporation Yard and the off-campus Printing & Reprographics operations would remain in their current locations. However, given the land use designation of Campus Support for the proposed project site, development of the project site with campus support uses could still occur, which could result in impacts generally similar to those from the proposed projects.

**Alternative 2: MLK/Canyon Crest Site:** Under this alternative, the proposed EH&S Expansion would be constructed at the northeast corner of Martin Luther King Boulevard (MLK) and Canyon Crest Drive, adjacent to the I-215/SR-60 freeway. This site was formerly designated for development of the facility through an amendment to the 2005 LRDP approved in 2008; it is currently designated for Parking based on an amendment to the 2005 LRDP approved in 2011. It was assumed for the purpose of this analysis that parking for EH&S facility staff would be provided on site as part of this alternative, and that Parking Lot 27 would still be built at its proposed location to serve overall campus needs, as well as the adjacent recreational fields. Because the EH&S Expansion facility would not be on the proposed project site, this alternative would not require use of the TAPS yard for the EH&S functions and would not require the



reorganization of the Corporation Yard. However, the related Corporation Yard reorganization project is still needed and would be implemented by the Campus, and therefore it is assumed that it would occur in the future as part of this alternative. The related project to reuse the existing EH&S facility would remain unchanged under this alternative.

The Alternative 2 site consists of the northern portion of a vacant 6-acre site that was previously used as a construction lay-down area by Caltrans during freeway improvements. The site is bordered by the freeway to the northeast, Parking Lot 30 across Canyon Crest Drive to the west, and campus-owned agricultural fields across MLK to the south. As noted above, the site is designated for parking uses under the 2005 LRDP as amended in 2011, and development of the proposed EH&S Expansion project would require an amendment to the amended 2005 LRDP.

**Alternative 3: Parking Lot 13:** Under this alternative, the proposed EH&S Expansion facility would be constructed on the site of the existing Parking Lot 13 south of Big Springs Road near the eastern edge of the East Campus. Parking Lot 13 has a total area of about 8 acres. The EH&S Expansion would occupy approximately 3 acres in the western portion of the parking lot and the rest of the parking lot would remain unchanged. For the purpose of this analysis, it was assumed that EH&S facility staff and visitors would park in the unaffected portion of Parking Lot 13. Under this alternative, Parking Lot 27 would still be built on the proposed project site and would serve overall campus needs, as well as the adjacent recreational fields. Because the EH&S Expansion facility would not be on the proposed project site, this alternative would not require use of the TAPS yard for the EH&S functions and would not require the reorganization of the Corporation Yard. However, the related Corporation Yard reorganization is still needed and would be implemented by the Campus, and therefore it is assumed that it would occur in the future as part of this alternative. The related project to reuse the existing EH&S facility would remain unchanged under this alternative.

The alternative site is located in an area of the East Campus that is developed with academic and student residential uses. Adjacent buildings include the Salinity Laboratory to the south, the Chemical Sciences building to the west, student residences and parking to the north, and campus-owned orchards to the southeast. Off-campus single- and multi-family residences are located at the eastern end of Parking Lot 13. The site is designated for Academic uses under the 2005 LRDP (as amended). Campus support facilities, such as an EH&S facility, are an allowable use in areas designated Academic under the 2005 LRDP.

Other alternatives, including several alternative sites (Southwest Corner of University Avenue and West Campus Drive, Greenhouses Area, Agricultural Operations Area, Parking Lot 6, and Substation Site),

were considered but not carried forth for detailed evaluation because they did not meet project objectives or were found to be infeasible for technical, environmental, or social reasons.

Detailed descriptions of the three alternatives evaluated in detail and their comparative merits are presented in **Section 6.0** of this EIR. **Table 2.0-2, Summary Comparison of Project Alternatives**, which follows **Table 2.0-1**, presents a comparison of the environmental impacts of each alternative to those that are expected to result from the proposed projects.

Alternative 2 (the MLK/Canyon Crest Site Alternative) would slightly reduce the proposed projects' significant impacts related to noise and traffic. However, it would have a significant and unavoidable land use impact that would be greater than that of both the proposed projects and Alternative 3. For this reason, and because Alternative 3 would meet most of the project's objectives, it was identified as the Environmentally Superior Alternative (see **Section 6.0** of this EIR).

## 2.8 ISSUES TO BE RESOLVED/AREAS OF CONTROVERSY

This EIR addresses environmental issues associated with the proposed projects that are known to the lead agency or were raised by other public agencies or interested parties during the EIR scoping process. During the scoping period, a public meeting was held on July 6, 2011, to solicit comments on the scope of the EIR from interested agencies, individuals, and organizations. The meeting was held at Bannockburn Room J-102 located at 3637 Canyon Crest Drive on the UCR campus. Comment letters and the transcript from the scoping meeting are included in **Appendix 1.0**. More comprehensive descriptions of issues raised during the scoping process are presented in the appropriate environmental analysis sections of this EIR. Following is a list of issues raised in the scoping comments received by UCR:

- A member of the public commented that the Air Quality analysis should address the potential for toxic fumes or odors to be released from the facility and affect nearby residents both on and off campus and stated that the analysis should address the potential for traffic from the project to create high concentrations of carbon monoxide (CO) and other air pollutants.
- The City of Riverside requested preparation of a health risk assessment; analysis of potential risks associated with transportation of hazardous materials; and analysis of potential impacts related to placement of the facility near the UCR Child Development Center and residential uses. Members of the public stated that, in addition to these issues, the EIR should address security at the facility and the potential risks associated with accidental release of hazardous materials due to accidents or natural disasters such as earthquakes.
- A commenter stated that the EIR should examine the potential for impacts to water quality in the event of an accidental spill of hazardous materials that could reach the municipal sewer system.

- The campus community requested that the EIR consider the compatibility of the proposed EH&S Expansion facility with nearby sensitive receptors, including neighboring residences and the child care center.
- A commenter stated that the EIR should address noise from vehicles, particularly waste-hauling trucks, stopping and accelerating at stop-controlled intersections.
- A member of the public requested that the EIR evaluate the effects of the related Corporation Yard reorganization project's demolition-phase truck traffic on nearby intersections and potential traffic and pedestrian hazards related to trucks turning on to Watkins Drive.

**Table 2.0-1  
Summary of Impacts and Mitigation Measures**

<b>Environmental Topic and Impact</b>	<b>Level of Significance before Mitigation</b>	<b>2005 LRDP PPs, PSs, and Mitigation Measures</b>	<b>Mitigation Measures</b>	<b>Level of Significance after Mitigation</b>
<b>4.1 Aesthetics</b>				
<b>Impact 4.1-1</b>				
Implementation of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not substantially degrade the visual character or quality of the campus and the immediate surrounding area.	Less than significant	PS Open Space 4 PS Campus & Community 1 PP 4.1-1 PP 4.1-2(a)	No mitigation is required.	Less than significant
<b>Impact 4.1-2</b>				
Implementation of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.	Less than significant	PP 4.1-1 PP 4.1-2(a) MM 4.1-3(a) MM 4.1-3(b)	No mitigation is required.	Less than significant
<b>Impact 4.1-3</b>				
Cumulative development, including the proposed EH&S Expansion, Parking Lot 27, and related projects, would not substantially degrade the visual character or quality of the campus and the immediate surrounding area. The contribution of the proposed projects to this cumulative impact would not be cumulatively considerable.	Less than significant	None identified.	No mitigation is required.	Less than significant
<b>4.2 Air Quality</b>				
<b>Impact 4.2-1</b>				
Construction of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not result in construction emissions that violate an air quality standard or contribute substantially to an existing or projected air quality violation.	Less than significant	PP 4.3-2(a) PP 4.3-2(b) PP 4.3-2(c)	No mitigation is required.	Less than significant

Environmental Topic and Impact	Level of Significance before Mitigation	2005 LRDP PPs, PSs, and Mitigation Measures	Mitigation Measures	Level of Significance after Mitigation
<b>Impact 4.2-2</b>				
Operation of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not result in operational emissions that would violate an air quality standard or contribute substantially to an existing or projected air quality violation.	Less than significant	None identified.	No mitigation is required.	Less than significant
<b>Impact 4.2-3</b>				
Implementation of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not expose sensitive receptors to substantial concentrations of carbon monoxide.	Less than significant	None identified.	No mitigation is required.	Less than significant
<b>Impact 4.2-4</b>				
Development of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not expose sensitive receptors to substantial concentrations of pollutants that exceed the localized significance thresholds.	Less than significant	None identified.	No mitigation is required.	Less than significant
<b>Impact 4.2-5</b>				
Development of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not expose sensitive receptors to substantial concentrations of toxic air contaminants.	Less than significant	None identified.	No mitigation is required.	Less than significant
<b>Impact 4.2-6</b>				
Development of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not create objectionable odors that could affect a substantial number of people.	Less than significant	None identified.	No mitigation is required.	Less than significant
<b>Impact 4.2-7</b>				
Implementation of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not conflict with or obstruct implementation of the applicable air quality plan.	Less than significant	None identified.	No mitigation is required.	Less than significant

Environmental Topic and Impact	Level of Significance before Mitigation	2005 LRDP PPs, PSs, and Mitigation Measures	Mitigation Measures	Level of Significance after Mitigation
<b>Impact 4.2-8</b>				
Development of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not result in a cumulatively considerable net increase of a criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard.	Less than significant	None identified.	No mitigation is required.	Less than significant
<b>4.3 Greenhouse Gas Emissions</b>				
<b>Impact 4.3-1</b>				
Construction and operation of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would generate GHG emissions both directly and indirectly. However the emissions would not result in a significant impact on the environment.	Less than significant	PP 4.3-2(a)	No mitigation is required.	Less than significant
<b>Impact 4.3-2</b>				
The EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	Less than significant	None identified.	No mitigation is required.	Less than significant
<b>4.4 Hazards and Hazardous Materials</b>				
<b>Impact 4.4-1</b>				
Implementation of the proposed EH&S Expansion and Parking Lot 27 (proposed projects) and the related projects would not expose campus occupants or the public to significant hazards due to the routine transport, use, disposal, or storage of hazardous materials (including chemical and radioactive waste).	Less than significant	PP 4.7-1 PP 4.7-2 PP 4.7-3 PP 4.7-4	No mitigation is required.	Less than significant

Environmental Topic and Impact	Level of Significance before Mitigation	2005 LRDP PPs, PSs, and Mitigation Measures	Mitigation Measures	Level of Significance after Mitigation
<b>Impact 4.4-2</b>				
Implementation of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and related projects 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.	Less than significant	PP 4.7-7(a) PP 4.7-7(b) MM 4.7-7(a) MM 4.7-7(b)	<b>MM 4.4-2:</b> EH&S staff shall provide all drivers removing hazardous materials or hazardous waste from the EH&S Expansion facility with printed directions clearly indicating the mandated haul route, exiting the EH&S Expansion facility left onto Watkins Drive and proceeding northwest to Blaine Street, then west on Blaine to the I-215/SR-60 freeway entrance ramps.	Less than significant
<b>Impact 4.4-3</b>				
Implementation of the proposed EH&S Expansion and Parking Lot 27 (proposed projects) and the related projects could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	Less than significant	PP 4.7-1	No mitigation is required.	Less than significant
<b>Impact 4.4-4</b>				
Cumulative development, including the EH&S Expansion and, Parking Lot 27 (proposed projects) and the related projects, would not expose the public to significant hazards, due to the transport, use, disposal, or storage of hazardous materials (including chemical and radioactive waste) under routine and accident or upset conditions or due to the project's location within one-quarter mile of a school.	Less than significant	None identified.	No mitigation is required.	Less than significant
<b>4.5 Hydrology and Water Quality</b>				
<b>Impact 4.5-1</b>				
Implementation of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not violate any water quality standards or waste discharge requirements.	Less than significant	PS Conservation 2 PP 4.8-1	No mitigation is required.	Less than significant

Environmental Topic and Impact	Level of Significance before Mitigation	2005 LRDP PPs, PSs, and Mitigation Measures	Mitigation Measures	Level of Significance after Mitigation
<b>Impact 4.5-2</b>				
Implementation of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not provide substantial additional sources of polluted runoff.	Less than significant	None identified.	No mitigation is required.	Less than significant
<b>Impact 4.5-3</b>				
Cumulative development, including the proposed EH&S Expansion and Parking Lot 27, would not create a significant cumulative impact on water quality.	Less than significant	None identified.	No mitigation is required.	Less than significant
<b>4.6 Land Use and Planning</b>				
<b>Impact 4.6-1</b>				
Implementation of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would be consistent with the on-campus land use designations. These uses would not be substantially incompatible with existing or proposed adjacent land uses on and off campus.	Less than significant	PS Land Use 7 PS Open Space 4 PS Campus & Community 1 PS Transportation 6 PS Development Strategy 1 PP 4.9-1(a) PP 4.9-1(b)	No mitigation is required.	Less than significant
<b>Impact 4.6-2</b>				
Implementation of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not conflict with a land use plan, policy, or regulation of a local agency.	Less than significant	None identified.	No mitigation is required.	Less than significant



Environmental Topic and Impact	Level of Significance before Mitigation	2005 LRDP PPs, PSs, and Mitigation Measures	Mitigation Measures	Level of Significance after Mitigation
<b>Impact 4.6-3</b>				
Cumulative development, including the EH&S Expansion, Parking Lot 27, and related projects, would not result in the development of land uses that are substantially incompatible with existing or planned land uses adjacent to the campus. The contribution of the proposed campus development to this cumulative impact would not be cumulatively considerable.	Less than significant	None identified.	No mitigation is required.	Less than significant
<b>Impact 4.6-4</b>				
Cumulative development, including the EH&S Expansion, Parking Lot 27, and related projects, would not conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the development. The contribution of the proposed projects to this cumulative impact would not be cumulatively considerable.	Less than significant	None identified.	No mitigation is required.	Less than significant
<b>4.7 Noise</b>				
<b>Impact 4.7-1</b>				
Implementation of the proposed EH&S Expansion and Parking Lot 27 (proposed projects) and the related projects would generate some additional traffic on local streets, but would not expose on and off-campus sensitive land uses to traffic-related noise levels in excess of the applicable noise standards or cause a substantial permanent increase in noise levels at on- or off-campus locations.	Less than significant	PP 4.10-5(b)	No mitigation is required.	Less than significant
<b>Impact 4.7-2</b>				
Implementation of the proposed EH&S Expansion and Parking Lot 27 (proposed projects) and the related projects would add new area and stationary-source noise, but would not cause a substantial permanent increase in ambient noise levels on- or off-campus.	Less than significant	PP 4.10-1(b) PP 4.10-6 PS Campus and Community 1	No mitigation is required.	Less than significant

Environmental Topic and Impact	Level of Significance before Mitigation	2005 LRDP PPs, PSs, and Mitigation Measures	Mitigation Measures	Level of Significance after Mitigation
<b>Impact 4.7-3</b>				
Construction of the proposed EH&S Expansion and Parking Lot 27 (proposed projects) and the related projects could result in substantial temporary or periodic increases in ambient noise levels at certain sensitive uses in the project vicinity.	Significant	PP 4.10-7 (a) PP 4.10-7 (b) PP 4.10-7 (c) PP 4.10-7 (d) PP 4.10-8	No additional mitigation is feasible.	Significant and unavoidable
<b>Impact 4.7-4</b>				
Construction associated with the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not expose persons on- or off-campus to excessive groundborne vibration levels.	Less than significant	PP 4.10-2 MM 4.10-2	No mitigation is required.	Less than significant
<b>Impact 4.7-5</b>				
Cumulative development, including the proposed EH&S Expansion and Parking Lot 27 (proposed projects) and the related projects, would cause a significant cumulative impact related to substantial permanent increases in ambient noise levels. The contribution of the proposed projects and related projects to this cumulative impact would be cumulatively considerable.	Significant	None identified.	No mitigation is feasible.	Significant and unavoidable
<b>Impact 4.7-6</b>				
Cumulative development, including construction of the EH&S Expansion and Parking Lot 27 (proposed projects) and the related projects, would cause a significant cumulative impact related to temporary or periodic increase in ambient noise levels or groundborne vibration. The contribution of the proposed projects and related projects to this cumulative impact would be cumulatively considerable.	Significant	PP 4.10-7 (a) PP 4.10-7 (b) PP 4.10-7 (c) PP 4.10-7 (d) PP 4.10-8	No additional mitigation is feasible.	Significant and unavoidable

Environmental Topic and Impact	Level of Significance before Mitigation	2005 LRDP PPs, PSs, and Mitigation Measures	Mitigation Measures	Level of Significance after Mitigation
<b>4.8 Transportation and Traffic</b>				
<b>Impact 4.8-1</b>				
Implementation of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would result in additional or rerouted vehicular trips which would increase traffic volumes but would not degrade intersection levels of service under existing conditions.	Less than significant	None identified.	No mitigation is required.	Less than significant
<b>Impact 4.8-2</b>				
Implementation of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would result in the generation of construction related vehicle trips that would not substantially affect traffic conditions at the study intersections.	Less than significant	None identified.	<p><b>MM 4.8-2:</b> Prior to commencement of construction, the construction contractor shall prepare a traffic control plan for the project and submit it to the UCR Office of Architects &amp; Engineers and Capital Resource Management for approval. Preparation of and compliance with the traffic control plan shall be included as a condition of all construction contracts. The traffic control plan shall include the following:</p> <p>(1) The plan shall specify the truck route to be taken by construction contractors for travel between the project site and I-215/SR-60 freeway. No construction traffic shall be allowed to travel east of the project site on Watkins Drive or southward onto Big Springs Road.</p>	Less than significant

Environmental Topic and Impact	Level of Significance before Mitigation	2005 LRDP PPs, PSs, and Mitigation Measures	Mitigation Measures	Level of Significance after Mitigation
<b>Impact 4.8-2 (continued)</b>				
			<p>(2) As part of its review of the traffic control plan, the UCR Office of Architects &amp; Engineers and Capital Resources Management will consult with UCPD, EH&amp;S, RFD, and RPD, as appropriate, to disclose roadway closures and identify alternative travel routes, if necessary. The UCR Office of Architects &amp; Engineers and Capital Resource Management will consult with the City Public Works Department to obtain its concurrence regarding the adequacy of traffic control along off-campus roads. The traffic control plan shall identify lane closures, show the limits of construction work, areas with temporary restriping of lanes and crosswalks, flagging operations, signage, alternate routes, and other actions necessary to maintain safe traffic conditions for vehicles, bicyclists, and pedestrians. Any lane closures specified in the traffic control plan will be announced on UCR's web site (<a href="http://www.community.ucr.edu">www.community.ucr.edu</a>).</p>	

Environmental Topic and Impact	Level of Significance before Mitigation	2005 LRDP PPs, PSs, and Mitigation Measures	Mitigation Measures	Level of Significance after Mitigation
<b>Impact 4.8-3</b>				
Cumulative development, including the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects, would not result in significant cumulative traffic impacts on city roadways between the project sites and the freeway.	Less than significant	MM 4.14-1(b) MM 4.14-1(c)	No mitigation is required.	Less than significant
<b>Impact 4.8-4</b>				
Concurrent construction of the EH&S Expansion and Parking Lot 27 (proposed projects), related projects, and other projects near the project site could result in significant cumulative traffic impacts on off-campus roadways. With implementation of <b>MM 4.8-2</b> , the proposed projects' and related projects' contribution to the cumulative impact would not be cumulatively considerable.	Less than significant	PP 4.14-2 PP 4.14-5	Implement <b>MM 4.8-2</b> . No additional mitigation is required.	Less than significant

**Table 2.0-2  
Summary Comparison of Project Alternatives**

	<b>Proposed Project Impact (Significant Before Mitigation)</b>	<b>No Project Alternative</b>	<b>MLK/Canyon Crest Site<sup>1</sup></b>	<b>Parking Lot 13</b>
4.7-3	Construction of the proposed EH&S Expansion and Parking Lot 27 (proposed projects) and the related projects could result in substantial temporary or periodic increases in ambient noise levels at certain sensitive uses in the project vicinity.	Impact Less than Proposed Projects	Impact Less than Proposed Projects	Impact Equal to Proposed Projects
4.7-5	Cumulative development, including the proposed EH&S Expansion and Parking Lot 27 project and related projects, would cause a significant cumulative impact related to substantial permanent increases in ambient noise levels. The contribution of the proposed projects and related projects to this cumulative impact would be cumulatively considerable.	Impact Less than Proposed Projects	Impact Less than Proposed Projects	Impact Equal to Proposed Projects
4.7-6	Cumulative development, including construction of the proposed EH&S Expansion and Parking Lot 27 project and related projects, would cause a significant cumulative impact related to temporary or periodic increase in ambient noise levels or groundborne vibration. This impact would be significant. The contribution of the proposed projects and related projects to this cumulative impact would be cumulatively considerable.	Impact Less than or Equal to Proposed Projects	Impact Less than Proposed Projects	Impact Equal to Proposed Projects

*Note:*

<sup>1</sup> *Alternative 2, the MLK/Canyon Crest Site Alternative, would have a significant and unavoidable land use impact that would be greater than that of the proposed projects or Alternative 3.*

## 3.0 PROJECT DESCRIPTION

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### 3.1 INTRODUCTION

This chapter presents the details of the proposed Environmental Health & Safety (EH&S) Expansion, Parking Lot 27 (proposed projects), and related Corporation Yard reorganization and existing EH&S buildings re-use (related projects) in terms of the need for the projects and their objectives, the project components and design features, the population associated with the proposed projects, and the anticipated construction schedule and activities.

The University of California, Riverside (UCR) proposes to construct an approximately 27,265-gross-square-foot (gsf), single-story building that would allow the relocation of EH&S functions from their present location in the south-central area of the campus and accommodate long-term growth in demand for EH&S services. The projects would also construct a new, approximately 50-space parking lot, Parking Lot 27. Related projects would reorganize some of the functions carried out at the Corporation Yard, including demolishing an existing warehouse and constructing a replacement for it, and transfer some functions from the Corporation Yard and an off-campus location to the existing EH&S building. These related projects are not being considered for approval by the University at this time; however, because they are interdependent with the proposed EH&S Expansion and Parking Lot 27 projects, this EIR includes analysis of their potential effects.

### 3.2 PROJECT LOCATION AND SURROUNDING USES

The UCR campus is located in the City of Riverside, 1.5 miles east of downtown Riverside and just west of the Box Springs Mountains. The City of Riverside is located within the County of Riverside, in a larger geographic area known as the Inland Empire, which is composed of western Riverside and San Bernardino counties. **Figure 3.0-1, Regional Context**, shows the location of the campus in a regional context. The campus is generally bounded by University Avenue and Blaine Street to the north, Watkins Drive and Valencia Hill Drive and its extension to the east, a line extending east from Le Conte Drive to the south, and Chicago Avenue to the west. The campus is bisected diagonally by the I-215/SR-60 freeway. **Figure 3.0-2, Local Setting**, shows the local setting of the campus.

The campus consists of approximately 1,144.4 acres, with approximately 614.5 acres east of the freeway (East Campus) serving as the undergraduate academic core and the location for the majority of existing academic, housing, and support facilities. The portion of the campus west of the freeway (West Campus), comprising approximately 529.9 acres, is primarily occupied by agricultural teaching and research fields,

the University Extension, two University office buildings, a third-party UCR student housing complex, and a large surface parking lot (Parking Lot 30).

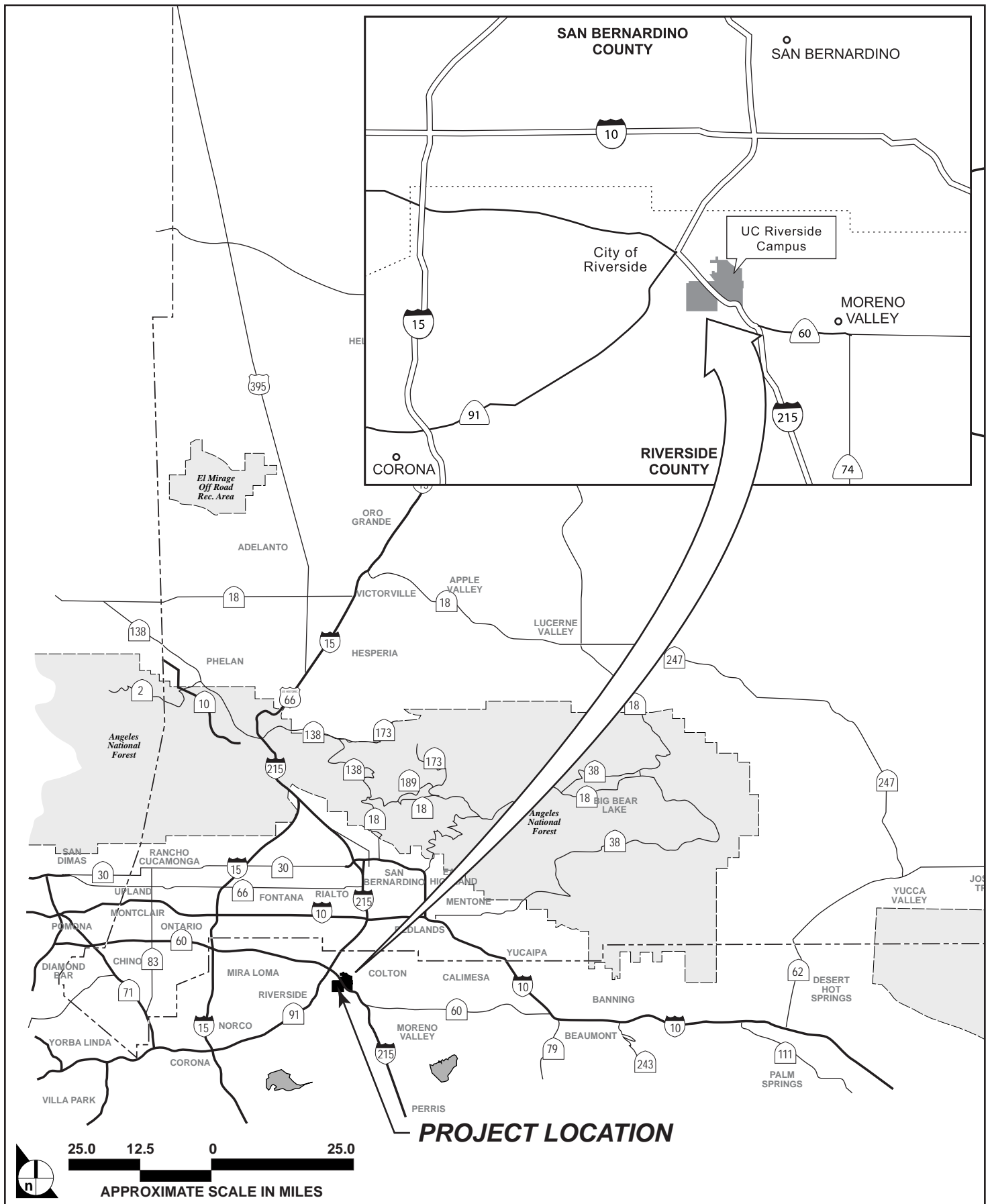
The proposed EH&S Expansion and Parking Lot 27 project site is located in the northeast portion of the East Campus, north of Linden Street, south of Watkins Drive, west of Valencia Hill Drive, and east of the UCR Corporation Yard and Transportation and Parking Services (TAPS) building. The approximately 2.7-acre project site consists of undeveloped land with little vegetation, except for a portion of the existing TAPS yard and a small community garden located on the western part of the site. The site is essentially flat and slopes gently from the east to the southwest. Palm trees border the southern edge of the site along Linden Street and its extension, with housing-related parking lots, recreational fields, and the Glen Mor 1 student housing complex located further to the south immediately beyond the palm trees. Watkins Drive forms the northern boundary of both the project site and the campus. A rail line runs parallel to Watkins Drive along its northern side, with residential development to the north beyond the rail line and to the east across Valencia Hill Drive. A campus child care facility, consisting of two buildings and related outdoor spaces accommodating approximately 300 infants through kindergarten students, is located at 3333 Watkins Drive between Blaine Street and the UCR Corporation Yard, approximately 1,200 feet northwest of the proposed project site. **Figure 3.0-3, Existing Site Plan**, shows the locations of the sites affected by the proposed projects, as well as buildings and other features on the sites.

The Corporation Yard is located adjacent to the west of the existing TAPS building and the proposed EH&S Expansion project site. It has an area of approximately 9 acres and includes three campus support facility buildings (Corporation A, B, and C), two warehouses (Warehouse #1 and #2), the Mail Services building, the Transportation and Parking Services (TAPS) building and yard, a car shed, a gas storage building, and outdoor storage and parking areas (see **Figure 3.0-3**).

The existing EH&S facility, which would be renovated subsequent to the construction of the EH&S Expansion building and reused as described below, is located in the southeastern part of the East Campus, at the intersection of South Campus Drive and East Campus Drive, east of the I-215/SR-60 freeway. The site consists of approximately 2.5 acres and includes two buildings, storage trailers, and parking areas. It has been used for EH&S functions since 1989.

Land uses surrounding the campus are primarily residential with some commercial uses along the major streets. Watkins Drive, on which the project site has street frontage, forms the northeastern edge of the East Campus and is separated from mostly one-story single-family residential uses (to the northeast) by an active railroad line, a high pressure jet fuel line (which turns south along Valencia Hill Drive), and a California Department of Water Resources pipeline and easement. Valencia Hill Drive fronts the eastern edge of the campus (north of Big Springs Road), with one-story single-family residential uses along the





SOURCE: Impact Sciences, Inc. – May 2011

FIGURE 3.0-1

Regional Context

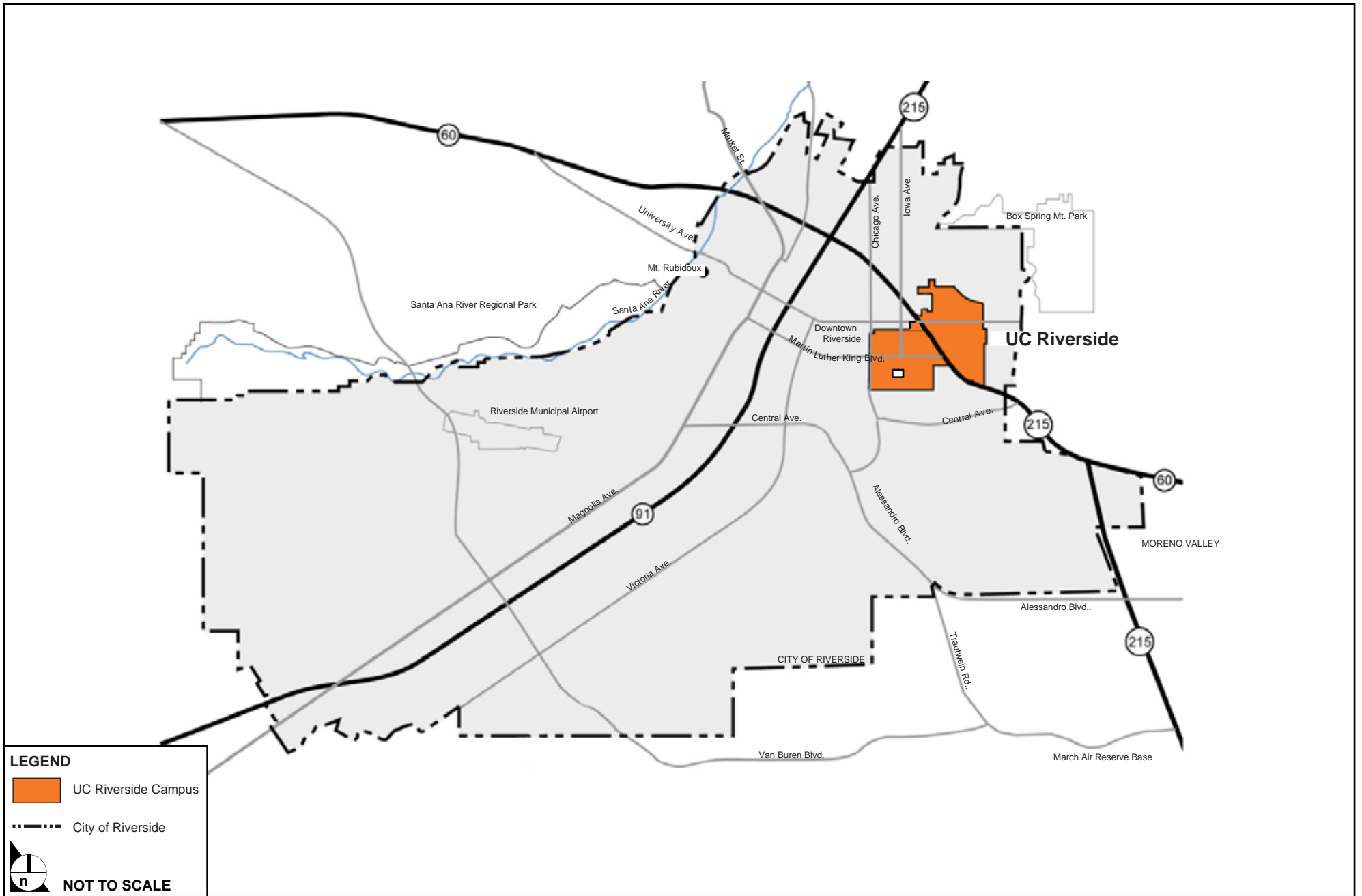
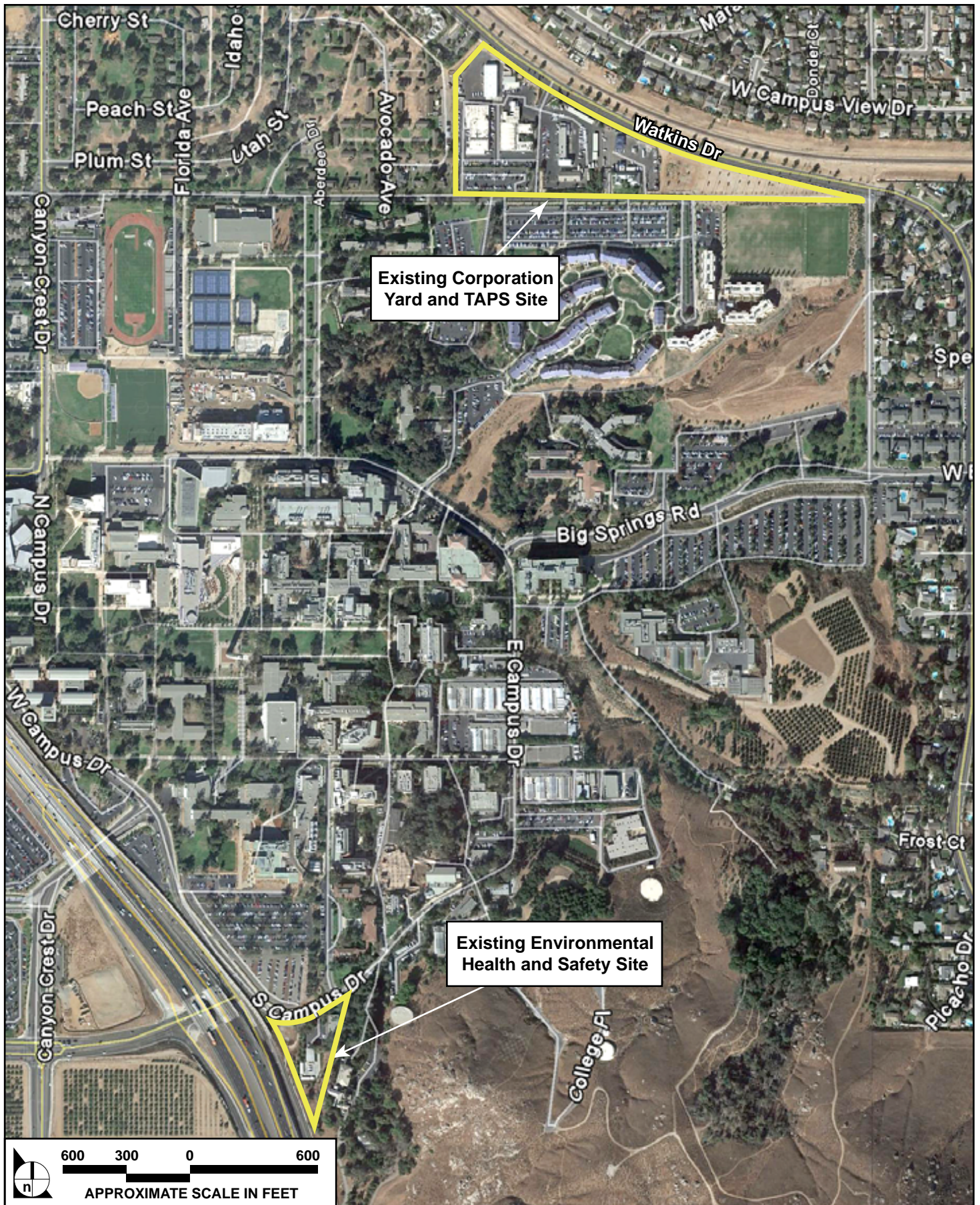


FIGURE 3.0-2

Local Setting



SOURCE: Google Earth – November 2009, Impact Sciences, Inc. – May 2011

FIGURE 3.0-3

Existing Site Plan



northern portion nearest the proposed project site and two-story multi-family apartments along the southern portion. Land uses north of Blaine Street west of the project site consist of multi-family residential and commercial uses.

### 3.3 PROJECT NEED AND OBJECTIVES

#### 3.3.1 Background

The Riverside campus has seen considerable growth since the existing EH&S facility was developed in 1989. In the last 12 years, student enrollment has grown from 8,200 full-time equivalent (FTE) students in 1997-98 to 19,439 FTE students in 2009-2010, representing an increase of 137 percent. During the same period, faculty has increased by 107 percent, from 448 FTE faculty in 1997-1998 to 928 FTE faculty in 2009-2010. Much of the recent enrollment growth has occurred in the science and engineering disciplines. Because of their emphasis on laboratory and technology-related programs, this increase in scientific instruction and research has increased the waste stream going to the Campus' existing EH&S facility, with further increases expected as campus student enrollment continues to grow and new science and engineering facilities are built. In addition, new and more stringent regulatory requirements imposed by federal and state agencies regarding the safe storage and handling of hazardous wastes have affected EH&S operations. These factors have brought the existing facility close to the limits of its capacity to support the Campus' instruction and research programs. A new facility is therefore needed to meet the current and growing environmental health and safety needs of UCR.

#### 3.3.2 Project Need

The existing EH&S facility was designed to support a campus with fewer than 8,000 FTE students, and it has become inadequate to support the needs of the current student population of approximately 19,439 FTE and to provide the required integrated waste management process, site access, safety and security, laboratory space, and training facilities. The following deficiencies in waste management facilities have been identified at the current facility:

##### *Integrated Waste Management*

The size of the current facility constrains operations in several ways, including:

- Insufficient space for bulking operations, resulting in increased operating costs from the shipment of smaller batches of chemical wastes.
- Undersized waste processing rooms.
- Insufficient floor space for weekly receiving of materials.

- Inadequate ventilation and climate control for flammable liquids.
- Lack of segregation between storage areas and office/administrative space.
- Inadequate separation between public and industrial functions.

### ***Existing Service Yard/Loading Dock***

Trucks serving the existing facility must negotiate a steep hill into the parking lot. The facility is not designed to accommodate larger commercial trucks, which have increasingly been needed as the amount of UCR-generated waste has increased. In addition, the existing facility has a non-standard loading dock, creating difficulties in handling internal campus waste as well as commercial pick-up and delivery of materials. The loading dock lacks secondary containment, creating a risk that any spill in the dock area would flow down a steep grade into existing campus roads and storm drains.

### ***Safety/Security***

Since 2001, federal agencies have created new regulations requiring increased segregation and security of certain hazardous materials. With the growing requirements for safety training, as well as commercial delivery access, the presence of non-EH&S personnel (campus personnel and vendors) has increased at the facility. However, the layout of the existing facility has made it difficult to meet the federal safety and security regulations because administrative and training functions are not physically segregated from the waste handling areas of EH&S.

### ***Laboratory Functions***

Several EH&S functions and programs require laboratory space for their operations. These include Radiation Safety Review, Approval, and Compliance Monitoring, which has generated increased demand due to the use of radioisotopes and radiation-producing machines by instruction and research activities and the Campus Health Center. In addition, Respiratory Protection, Bio-safety Review, Hazard Assessment, Exposure Monitoring Services, and Indoor Air Quality programs require respiratory equipment testing, waste treatment verification, and indoor air sampling. These functions require laboratory space to ensure proper testing and instrumentation. Currently, there is a lack of dedicated space for required testing, inadequate storage space, and a lack of controlled environment for sensitive equipment storage. Laboratory space within the existing EH&S facility is not sufficient to handle the increase in required testing of waste materials associated with the increased volume of waste and the laboratory facilities cannot meet more stringent regulatory requirements. These programmatic needs are thus severely constrained or must be served at other locations on campus.

### ***Safety Training Services***

The EH&S office provides hundreds of training classes to over 2,000 participants each year in topics such as radiation safety to maintain campus licenses. However, the existing EH&S facility does not include suitable training rooms, and many EH&S classes are conducted in other facilities throughout the campus, posing a challenge due to the competing demands for space. The demand for EH&S training services is expected to increase with expansion of science and engineering instruction and research activities. The lack of space limits the ability of EH&S to provide timely training to campus users, and the projected long-term increase in personnel requiring safety training would pose further challenges on an already constrained facility.

### ***Administration and Information Technology***

The existing facility was designed for a staff of four to six FTE employees. With a current staff of 22 FTE, which is expected to increase to approximately 26 FTE anticipated by 2015-2016 and to 30 FTE by 2020-2021, including specialists, technicians, and support personnel, there is a need for additional facilities and office space. A triple-wide trailer was installed in 2000 on the existing EH&S site as a temporary measure to accommodate growth in administrative functions and employees. Even with this increase, the existing facilities do not provide sufficient storage space for technical material or adequate space for meetings, offices, and information technology.

### **3.3.3 Project Objectives**

The primary objectives of the proposed EH&S Expansion and Parking Lot 27 projects include the following:

- Provide a long-term, consolidated campus facility for all EH&S functions through the 2020-2021 LRDP planning horizon, including office space for 30 full-time equivalent (FTE) employees, laboratory space for analysis of waste characteristics, meeting rooms and facilities for safety training seminars, record keeping and preparation of hazardous materials assessments and manifests, and mitigation (reduction of hazardous characteristics of waste), collection and storage facilities, and processing areas for transport.
- Provide a building that will facilitate the critical services EH&S provides to the research, training, and administration community at UCR.
- Construct a building that is a model of environmental sustainability and in compliance with all State and federal health and safety standards.
- Provide a limited amount of nearby parking for EH&S staff and visiting regulators.

- Implement Planning Strategy Land Use 7, which calls for the campus to relocate parking from central campus locations to the periphery of the academic core and replace surface parking with structures, where appropriate.
- Provide a facility proximate to on-campus generators to enable safe transport from generators to the EH&S facility in accordance with State and federal regulations, while ensuring access to off-campus haul routes.
- Consolidate and relocate Printing & Reprographic Services (P&R) and Mail Services into a single location that will better serve campus needs. P&R Services are currently located at an off-campus site; this program would better serve the campus at an on-campus location and equipment efficiency would be achieved by consolidating operations with Mail Services.
- Provide upgraded warehouse space and operational areas at the Corporation Yard.
- Consistent with campus planning principles, locate and design the proposed and related projects to represent optimal investment of land and capital in the future of the campus and to maximize and efficiently use available developable space on campus.

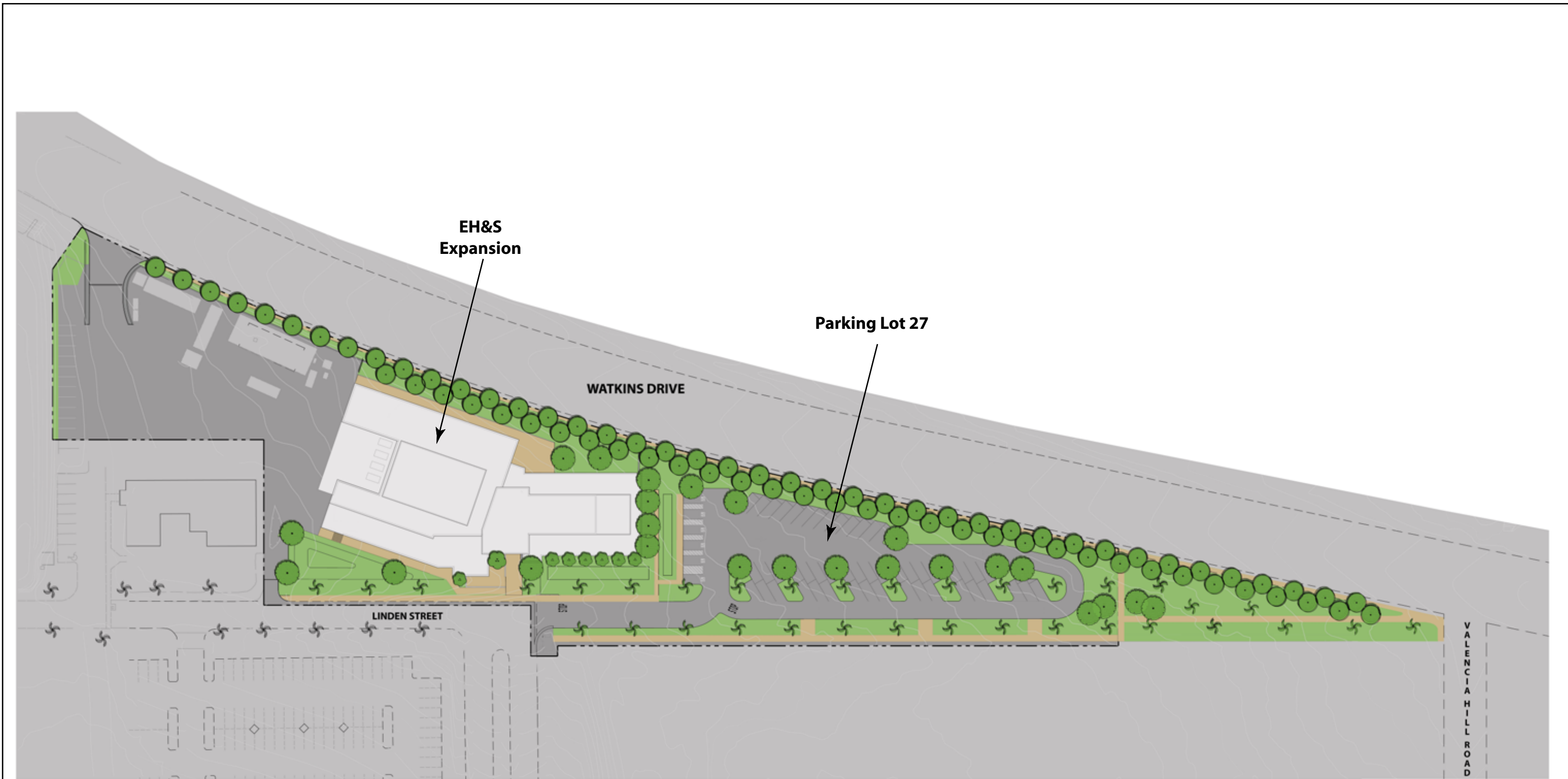
### 3.4 PROJECT DESCRIPTION

The proposed projects would address campus growth, expanded regulatory requirements, and anticipated growth in the areas of waste handling, administrative support, and training while supporting the EH&S mission to create a safe campus environment. The proposed projects involve construction of a new EH&S building and a new joint-use parking lot and related projects include the reorganization of the Corporation Yard including demolition and replacement of a warehouse, and reuse of the existing EH&S building. Each element of the proposed projects and related projects is described in detail below. **Figure 3.0-4, Proposed EH&S Facility Expansion Site Plan; Figure 3.0-5, Proposed Corporation Yard Reorganization Site Plan; and Figure 3.0-6, Proposed EH&S Building Reuse Plan** show locations and details of the proposed new development and uses.

#### 3.4.1 Proposed Projects

##### *EH&S Expansion*

The proposed EH&S Expansion project includes construction of a new single-story EH&S building that would allow UCR to relocate the EH&S functions from their present location in the southeast area of the East Campus. The new EH&S Expansion facility is intended to provide a long-term, consolidated campus facility for all EH&S functions in a building designed using principles of environmental sustainability. The building would include approximately 27,265 gross square feet (gsf) of space, including about 18,674 assignable square feet (asf). The west wing of the building would be about 31 feet high and the east wing



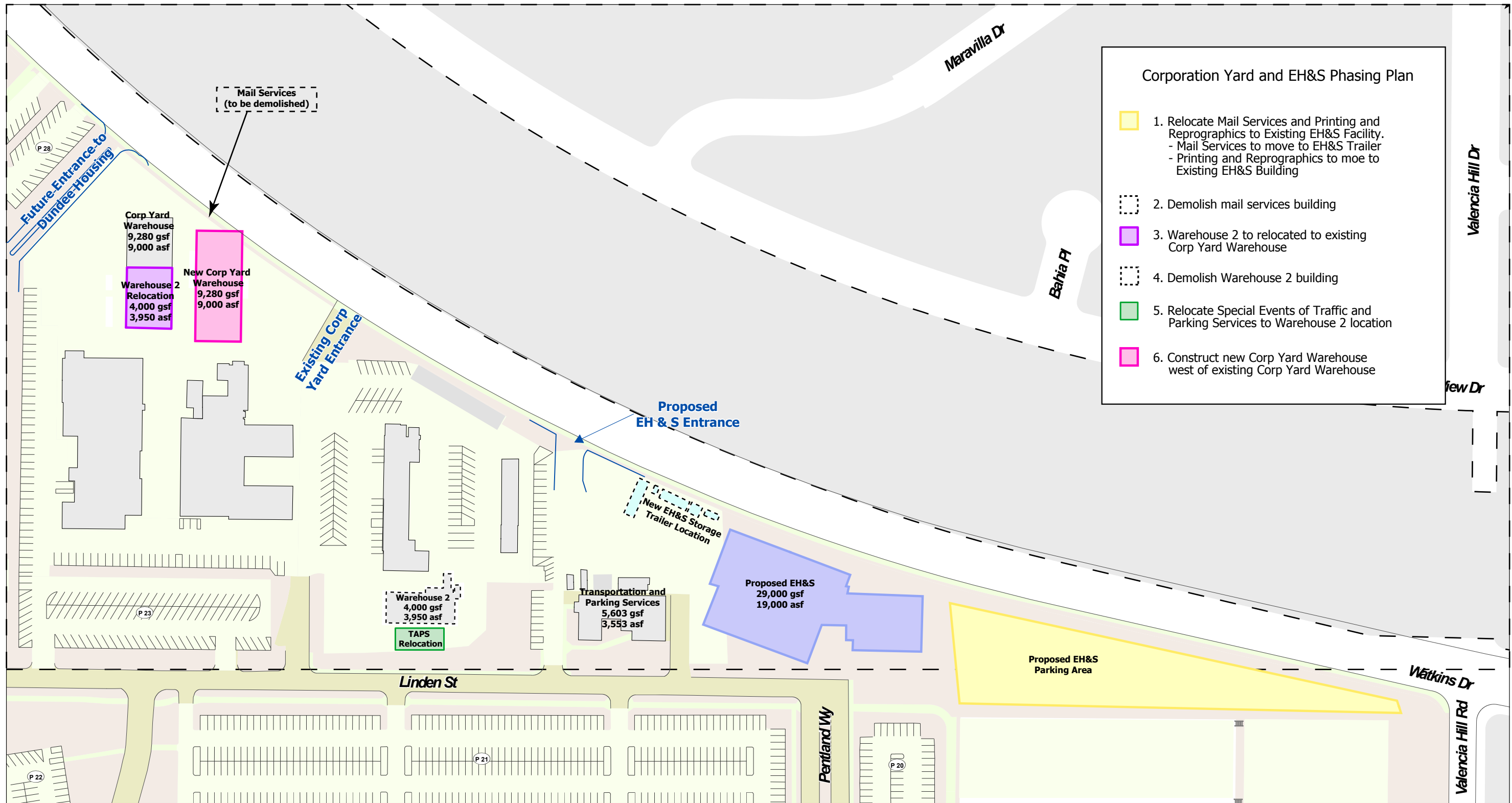

**NOT TO SCALE**

SOURCE: HDR - June 2011

FIGURE 3.0-4

Proposed EH&S Facility Expansion Site Plan





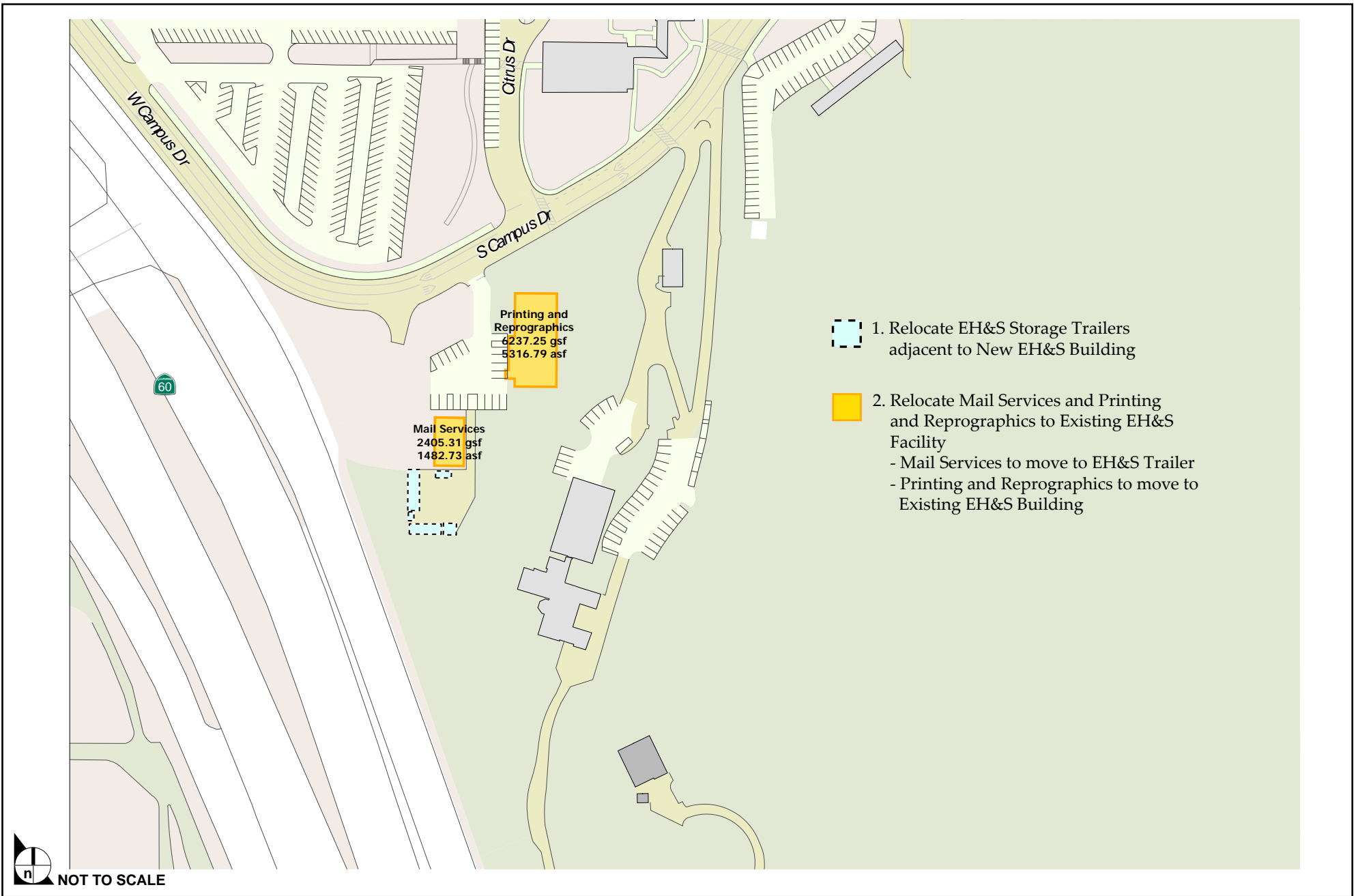
- Corporation Yard and EH&S Phasing Plan**
- 1. Relocate Mail Services and Printing and Reprographics to Existing EH&S Facility.
    - Mail Services to move to EH&S Trailer
    - Printing and Reprographics to move to Existing EH&S Building
  - 2. Demolish mail services building
  - 3. Warehouse 2 to relocated to existing Corp Yard Warehouse
  - 4. Demolish Warehouse 2 building
  - 5. Relocate Special Events of Traffic and Parking Services to Warehouse 2 location
  - 6. Construct new Corp Yard Warehouse west of existing Corp Yard Warehouse

**NOT TO SCALE**

SOURCE: UCR, Impact Sciences, Inc., 2011

FIGURE 3.0-5

Proposed Corporation Yard Reorganization Site Plan



SOURCE: UCR – April 2010

FIGURE 3.0-6

Proposed EH&S Building Reuse Plan

would be about 22 feet high. Uses would include about 6,823 asf of administrative/office space; 2,158 asf for a safety learning center, seating up to approximately 60 people; 1,358 asf of laboratories; and 8,335 asf of materials handling and storage space for chemical, radiation, biomedical, and universal waste and building support services. Outside yard areas with an area of about 6,400 square feet would house specialized storage containers and provide secure materials handling access. The proposed facility would be oriented east to west across the site, with materials handling, laboratories, and training areas in the western section of the building, administrative areas in the eastern section, and a central entrance lobby connecting the two sections. The exterior of the building would be finished primarily in brick, glass, concrete block, and stucco, compatible with existing campus buildings. The project's goals include meeting the requirements for LEED® Silver or better certification. **Figure 3.0-7, Conceptual EH&S Expansion Elevations**, shows conceptual renderings of the building's exterior and surroundings.

The building would have a 750-kilowatt diesel emergency generator with a 600-gallon aboveground base-mounted fuel tank. The generator would be located within the secured yard and the exhaust vent would run to the roof, a minimum of 2 feet above the nearest parapet. The project would also include utility extensions. As part of the proposed EH&S Expansion project, the existing EH&S storage trailers would be relocated to the new secured EH&S yard located in the area north of the TAPS building south of Watkins Drive, adjacent to the west of the new EH&S Expansion building and they would continue to be used for their current purposes, including storage of potentially explosive compounds, radioactive waste, and universal waste.

### *Utilities*

The proposed new EH&S Expansion facility would be connected to existing Campus utility systems, including water, wastewater, natural gas, electricity, and telecommunications, which are present on the adjacent Corporation Yard. A new aboveground electrical transformer would be installed adjacent to the building. Typical utility infrastructure, including pipelines and cable, would be located underground.

### *Landscaping*

Landscaping elements would include native and low-water-requirement plantings, shade trees, and colored concrete walks. A garden with seating would be provided in the outdoor employee break area and a small terrace would be installed adjacent to the building. A row of trees would be planted along the northern edge of the project site to screen views from the north of Watkins Drive. The existing row of palm trees on the south side of the site along Linden Street would be retained. Bioswales and stormwater retention areas would be incorporated into the landscaping.

### ***Roadway and Pedestrian Access***

The main access would be from the south along Linden Street, and all pedestrian and vehicle access from campus for visitors, classes, and campus collection of hazardous materials would be from Linden Street at a driveway access west of the TAPS building. The Watkins Drive access would be used only for commercial hazardous waste pickup and limited deliveries. Access to the yard from either entrance would be restricted to authorized vehicles. The EH&S yard gate would lead to a controlled dock area serving the materials handling area and to site storage containers and limited parking spaces.

### ***EH&S Vehicle Trips***

Under existing conditions, the EH&S facility operations involve approximately 16 on-campus truck trips daily and a small additional number of off-campus trips that occur weekly, monthly, or a few times per year by outside commercial haulers. There are also vehicle trips associated with staff and visitors to the facility. Following completion of the proposed EH&S Expansion, these trips would be transferred to the new facility. Vehicle trips currently associated with the Mail Services would be rerouted to the existing EH&S facility once the Mail Services department is relocated. Vehicle trips associated with the project are described in **Section 4.8, Transportation and Traffic**.

The proposed EH&S Expansion would be included in transportation strategies offered by the Campus to reduce vehicular traffic, including:

- a car-sharing program available to students, faculty, and staff;
- the UPASS program for students, faculty, and staff;
- bicycle facilities, including bicycle racks and lockers as well as shower facilities; and
- preferential parking spaces for carpools and vanpools.

### ***Parking Lot 27***

A new parking lot would be built at the east end of the proposed EH&S Expansion site to jointly serve the EH&S facility and the adjacent recreational fields. Approximately 50 parking spaces would be provided. Access to the lot would be via a driveway connecting to Linden Street. While the lot would provide parking for EH&S Expansion facility users and would have a pedestrian connection to the EH&S Expansion building, it would be outside the secured EH&S yard and would not include any connection to the secured yard. Parking Lot 27 would be controlled as part of the established campus parking lot system. Pedestrian access to the adjacent recreational fields would be available.



SOURCE: UCR – November 2010

FIGURE 3.0-7

## Conceptual EH&S Expansion Elevations

### 3.4.2 Related Projects

#### *Corporation Yard Reorganization*

Because the proposed EH&S building and secured service yard would use a portion of the existing TAPS yard area, functions currently located in the TAPS yard would need to be relocated. Under the proposed reorganization, the Corporation Yard would accommodate TAPS uses while transferring some units to the existing EH&S building (see above). Elements of the reorganization include the following:

- The Mail Services operations, currently located in the north-central portion of the Corporation Yard, would be relocated to the existing EH&S facility. The existing Mail Services building, which has an area of approximately 2,800 gsf, would be demolished.
- Corporation Yard Warehouse #2, which has an area of approximately 4,000 gsf, would be demolished because of its age and its construction, which does not meet current building standards. The materials stored inside Warehouse #2, which consist of surplus dry material storage and sales, would be relocated, as needed, to a new, replacement warehouse building of approximately 5,400 gsf to be constructed in the north-central portion of the Corporation Yard near the location of the current Mail Services operation.
- The TAPS/Special Events program storage and operations area currently located north of the TAPS building would be transferred to a replacement facility in the south-central portion of the Corporation Yard, at the current location of Warehouse #2. Support structures consisting of administration offices, desk and locker space, signage production and storage, bus parking, and large volume storage, and including a bus wash station, would be constructed at this location. **Figure 3.0-5** shows the proposed locations of Corporation Yard functions and the proposed new Warehouse #2.

#### *Reuse of Existing EH&S Building*

The existing EH&S facility would be renovated and backfilled by two functions that currently occupy space elsewhere. Mail Services, currently located at the Corporation Yard, would occupy the existing 2,400-square-foot EH&S modular building, after renovation. Printing & Reprographic Services, currently located off campus in UC-owned space at 2100 Atlanta Avenue in Riverside, would occupy the existing 6,200-square-foot EH&S building, after renovation. **Figure 3.0-6** shows the proposed uses. Renovation activities would be primarily interior renovations, with minor exterior seismic improvements. The relocated uses would continue to be served by existing driveways and parking areas.

### 3.4.3 Hazardous Waste

EH&S operates under permits from the U.S. Environmental Protection Agency (EPA) and the California Department of Toxic Substances Control (DTSC). Waste management activities would be conducted in full compliance with all applicable local, State, and federal requirements to assure proper accumulation,

storage, treatment, and disposal. Refer to **Section 4.4, Hazards and Hazardous Materials**, for details about operations.

### 3.4.4 Project Population

The number of EH&S employees is projected to increase by about 8 employees, from 22 FTE employees at the present time to approximately 30 FTE. This growth in campus employees was accounted for in the 2005 LRDP EIR, and was also included in the 2005 LRDP Amendment 2 EIR (2011). There would be no increase in employees associated with the related projects.

### 3.4.5 Project Construction

The proposed projects and related projects would proceed in the following phases:

- Relocation of outdoor TAPS operations (Special Events program, buses, and trolleys) to temporary accommodations within the Corporation Yard prior to the start of construction of the proposed new EH&S Expansion.
- Construction and occupancy of new EH&S Expansion facility. The future Parking Lot #27 area would be used for construction lay-down, and would then be completed and striped for parking.
- Renovation of the existing EH&S facilities and occupancy by Mail Services and Printing & Reprographic Services.
- Demolition of Mail Services building and construction of new Warehouse #2 building in the Corporation Yard area.
- Demolition of the existing Warehouse #2 building.
- Construction of the new TAPS Special Events program area and relocation of the Special Events program operations from temporary location to the new facility.

Construction of the EH&S Expansion and Parking Lot 27 is expected to start in 2012 and be completed by Fall 2014. The renovation and reuse of the existing EH&S Building and the Corporation Yard reorganization is expected to be completed by Fall 2016. As required by the Programs and Practices in the 2005 LRDP, as amended, exterior construction hours would be limited to between 7:00 AM and 9:00 PM from Monday through Friday and between 8:00 AM and 6:00 PM on Saturdays when necessary. It is expected that construction would take place Monday through Friday and would typically involve typical construction hours that extend from early morning through mid-afternoon.

The projects would apply for coverage under the California National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity. In compliance with the permit process, UCR would file a Notice of Intent with the State Water Resources

Control Board, and a construction-phase Storm Water Pollution Prevention Plan (SWPPP) would be developed and implemented during project construction in order to avoid the discharge of sediment and pollutants into surface waters.

### 3.5 PROJECT APPROVALS

The EH&S Expansion and Parking Lot 27 will be University of California facilities located on land owned by the University within the boundaries of UCR. As the public entity principally responsible for approving or carrying out the proposed projects, The Regents of the University of California (Regents) is the Lead Agency under CEQA. The Regents or its delegate is responsible for complying with CEQA and determining whether to approve the proposed projects. The Regents or its delegate will review and consider this EIR in conjunction with the review and consideration of the EH&S Expansion and Parking Lot 27 projects.

This EIR will also provide information to other agencies with permitting or approval authority over the proposed projects. Other potential approvals that the projects may need include the following:

- Coverage under the Statewide NPDES General Permit for Storm Water Discharges Associated with Construction Activity.
- Operating permits for the EH&S Expansion from the EPA and DTSC.



## 4.0 ENVIRONMENTAL IMPACT ANALYSIS

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### 4.0.1 INTRODUCTION

This Environmental Impact Report (EIR) is a project-level environmental assessment tiered from the UCR 2005 LRDP as supplemented and updated by the UCR 2005 LRDP Amendment 2 EIR (2011) in accordance with Sections 15152 and 15183 of the *State CEQA Guidelines* and Public Resources Code Section 21094. It evaluates the effects of implementation of the proposed Environmental Health and Safety (EH&S) Expansion and Parking Lot 27. It also evaluates related projects that could occur consequent to the project; these include reorganization of the Corporation Yard and reuse of the existing EH&S buildings.

As described in **Chapter 1.0, Introduction**, based on preliminary environmental analysis and the input received during the EIR scoping process, this EIR addresses the following environmental factors in detail:

- Aesthetics
- Air Quality
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Transportation and Traffic

The preparation of this EIR was preceded by an Initial Study (included in **Appendix 1.0**), which determined that the proposed EH&S Expansion project would not result in any significant impacts to agricultural resources, biological resources, cultural resources, geology and soils, mineral resources, population and housing, public services, recreation, or utilities and service systems, and therefore further evaluation of these environmental factors in this EIR was not needed. The Initial Study also determined that the proposed project would not result in certain identified impacts related to the environmental factors listed above. The resource sections that follow clearly identify those impacts that were scoped out based on the analysis in the Initial Study and are therefore not evaluated further in this EIR.

### 4.0.2 LEVEL OF SIGNIFICANCE

Under the *California Environmental Quality Act (CEQA)*, a variety of terms are used to describe the levels of significance of environmental impacts. The definition of terms used in this EIR is presented below.

- **Significant and Unavoidable Impact.** An impact that exceeds the defined standards of significance and cannot be avoided or reduced to a less than significant level through implementation of feasible mitigation measures.

- **Significant Impact.** An impact that exceeds the defined standards of significance and that can be avoided or reduced to a less than significant level through implementation of feasible mitigation measures.
- **Potentially Significant Impact.** A significant impact that may ultimately be determined to be less than significant; the level of significance may be reduced through implementation of policies or guidelines (that are not required by statute or ordinance), or through further definition of the project detail in the future. Potentially significant impacts may also be impacts for which there is not enough information to draw a firm conclusion; however, for the purpose of this EIR, they are considered significant. Such impacts are equivalent to Significant Impacts and require the identification of feasible mitigation measures.
- **Less Than Significant Impact.** Impacts that are adverse but that do not exceed the specified standards of significance.
- **No Impact.** The project would not create an impact.

### 4.0.3 FORMAT OF ENVIRONMENTAL SECTIONS

Each environmental factor considered in this section of the EIR is addressed under six primary subsections: Introduction, Environmental Setting, Regulatory Setting, Project Impacts and Mitigation Measures, Cumulative Impacts and Mitigation Measures, and References. An overview of the information included in these sections is provided below.

#### 4.0.3.1 Introduction

The introduction section describes the factor to be analyzed and the contents of the analysis. It also provides the sources used to evaluate the potential impact of the project, and lists issues and concerns relative to the environmental factor identified by the public and the agencies during the EIR scoping process.

#### 4.0.3.2 Environmental Setting

The environmental setting section for each environmental factor provides a description of the applicable physical setting of the project area and its surroundings (e.g., existing land uses, existing soil conditions, existing traffic conditions). The extent of the environmental setting area evaluated (the study area) differs among resources depending on the locations where impacts would be expected. For example, traffic impacts due to the proposed project are assessed for the local and regional roadway network, whereas aesthetic impacts from the implementation of the proposed project are assessed for immediate vicinity of the project. The setting sections describe both local resources and regional resources that occur throughout the broader geographic area.

Section 15125 of the *State CEQA Guidelines* requires EIRs to include a description of the physical environmental conditions in the area of a project that exist at the time that the Notice of Preparation (NOP) is circulated. These environmental conditions normally constitute the baseline physical conditions relative to which the lead agency evaluates the change in conditions that would result from project implementation. The NOP for this Draft EIR was issued on June 3, 2011. Therefore, environmental conditions as of June 2011 represent the baseline for CEQA purposes. To evaluate most of the impacts of the proposed project, the conditions in 2011 are considered to be the baseline. Full development of the proposed project is then added to existing conditions in order to determine whether project implementation would substantially impact the resources, thereby resulting in a significant impact on the environment.

#### **4.0.3.3 Regulatory Setting**

The overview of regulatory considerations for each environmental factor is organized by agency, including applicable federal, State, regional, and local policies.

#### **4.0.3.4 Project Impacts and Mitigation Measures**

This subsection lists significance criteria that are used to evaluate impacts, followed by a discussion of the impacts that would result from implementation of the proposed project. Impacts are numbered and shown in bold type, and the mitigation measures are numbered to correspond to the impact. Impacts and mitigation measures are numbered consecutively within each section.

Relevant LRDP Planning Strategies (PSs), Programs and Practices (PPs), and Mitigation Measures (MMs) that were adopted by The Regents in conjunction with the approval of the 2005 LRDP and the 2005 LRDP Amendment 2 (2011) are also discussed in each subsection. Therefore, the analysis presented in this EIR evaluates environmental impacts that would result from project implementation after the application of the 2005 LRDP PSs, PP, and MM, as amended where relevant by the 2005 LRDP Amendment 2 (2011).

#### **4.0.3.5 Cumulative Impacts and Mitigation Measures**

In addition to the impacts of the proposed project, each resource topic section also discusses cumulative impacts of campus development under the 2005 LRDP, as amended, considered together with other development that may cause related impacts. The geographic area considered for each cumulative impact depends upon the impact that is being analyzed. For example, in assessing aesthetic impacts, only development within the vicinity of the campus would contribute to a cumulative visual effect. In assessing air quality impacts, on the other hand, all development within the air basin would contribute to regional emissions of criteria pollutants, and basin-wide projections of emissions are the best tool for

determining the cumulative effect. For most resource areas, the cumulative study area is the City of Riverside.

The *State CEQA Guidelines* suggest that the analysis of cumulative impacts for each environmental factor can employ one of two methods to establish the effects of other past, current, and probable future projects. A lead agency may select a list of projects, including those outside the control of the agency, or, alternatively, a summary of projections. These projections may be from an adopted general plan or related planning document, or from a prior environmental document that has been adopted or certified, and these documents may describe or evaluate regional or area-wide conditions contributing to the cumulative impact. The 2005 UCR LRDP as amended includes projections of campus growth and is the applicable planning document. The 2005 LRDP horizon year is 2020-2021.

The cumulative impacts discussion describes the cumulative impacts of the proposed project, and determines whether the proposed project in combination with other foreseeable development would result in a significant cumulative impact, and, if so, whether the proposed project's contribution to the significant cumulative impact would be cumulatively considerable.

Section 15130 of the *State CEQA Guidelines* provides direction regarding cumulative impact analysis as follows:

- An EIR should not discuss cumulative impacts that do not result in part from the proposed project;
- A lead agency may determine that an identified cumulative impact is less than significant, and shall briefly identify facts and analysis in the EIR supporting its determination;
- A lead agency may determine a project's incremental effect is not cumulatively considerable, and therefore is not significant, and shall briefly describe in the EIR the basis of its determination; and
- A lead agency may determine a project's cumulatively considerable contribution to a significant cumulative impact may be rendered less than cumulatively considerable and therefore residually not significant, if the project implements or funds its fair share of mitigation measure or measures designed to alleviate the cumulative impact.

### 4.1.1 INTRODUCTION

This section describes the visual setting of the project site and evaluates the potential for changes in visual character and light and glare from the implementation of the proposed Environmental Health & Safety (EH&S) Expansion, Parking Lot 27 (proposed projects), and related Corporation Yard reorganization and existing EH&S buildings re-use (related projects). This section also summarizes the Initial Study discussion of the projects' potential to block or alter scenic vistas and the potential for scenic resources to be affected by the proposed development.

Information used in the analysis below was obtained from site visits, environmental documents associated with other projects at UCR, and other campus data sources.

In response to the Notice of Preparation for this EIR, the City of Riverside noted that the Draft EIR needs to expand on the analysis in the Initial Study as it relates to aesthetics, particularly with regard to outdoor yards and storage areas and delivery/pickup areas. Comments from the public noted that the Draft EIR should address new sources of light and glare associated with the proposed project, including exterior and parking lot lighting, and should address cumulative light and glare conditions. These issues are addressed in the impact analysis section below.

### 4.1.2 EXISTING CONDITIONS

#### 4.1.2.1 Campus Setting

The 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR (2011) present a detailed description of the campus in relation to the City of Riverside, describing the visual characteristics of the East and West Campuses and surrounding areas, existing vistas, off-campus views, and light and glare conditions (UCR 2005 and 2011a). Please see Section 4.1.2 of the 2005 LRDP EIR for a full discussion of the aesthetics setting, especially as it relates to the East Campus.

#### 4.1.2.2 Visual Character and Quality of the Project Site

The EH&S Expansion and Parking Lot 27 project site is bounded by Watkins Drive to the north, Valencia Hill Drive to the east, Linden Street and UCR recreational fields to the south, and the existing Transportation & Parking Services (TAPS) building and yard to the west. The site consists of flat, undeveloped land that has little vegetation, except for a small community garden located on the western portion of the site and a double row of mature palm trees along Linden Street. **Figure 4.1-1, Site**

**Photographs**, shows views of the EH&S Expansion and Parking Lot 27 project site and the adjacent Corporation Yard and TAPS building and yard.

#### 4.1.2.3 Visual Characteristics of the Surrounding Area

The area immediately surrounding the EH&S Expansion and Parking Lot 27 project site is entirely developed and is characterized by a mix of one-story residences, low-rise and multi-story campus buildings, parking lots and roadways, and recreational fields. Single-family residences are located north of the site across Watkins Drive and a railroad right-of-way, as well as along Watkins Drive and Valencia Hill Drive to the east of the site. **Figure 4.1-2, Project Area Photographs**, shows the surrounding area. Multi-story student residential buildings and the grass lawns and light standards of the recreation fields are located to the south of the project site and form a backdrop to public views of the site from Watkins Drive. As shown in **Figure 4.1-1**, one-story buildings, stored heavy equipment and vehicles, and outdoor service and storage areas are also visible within the fenced TAPS and Corporation Yard areas from both on-campus viewpoints and public viewpoints along Watkins Drive, as well as from the back yards of nearby residences. The Corporation Yard is partially screened from public view by a fence along Watkins Drive.

The existing EH&S buildings re-use site consists of a sloping parcel located south of South Campus Drive; it is largely shielded from public viewpoints along South Campus Drive by topography and vegetation. Brief glimpses of the existing facility are available from the I-215/SR-60 freeway.

On clear days, the most prominent visual feature in the vicinity of the campus is the Box Springs Mountains, which are located to the northeast, east, and southeast of the campus. In the vicinity of the campus, the Box Springs Mountains range in height from approximately 1,944 feet (above mean sea level) to the north of the campus to approximately 2,200 to 2,800 feet east of the campus, and up to 1,541 feet in the hills located in the southeastern portion of the campus. With a general on-campus elevation ranging between 1,000 and 1,100 feet (in the academic core and the area west of the I-215/SR-60 freeway), the Box Springs Mountains rise approximately 800 feet above the elevation of the campus within 1 mile to the north of the campus and approximately 1,700 feet above the elevation of the campus within 2 miles east of the campus. One segment of the Box Springs Mountains extends into the southeastern portion of the campus, with elevations that rise between 300 to 500 feet above the general campus elevation. Other visual features of note in the vicinity include Mt. Rubidoux to the west, the northern San Bernardino Mountains to the north, and the San Gabriel Mountains approximately 35 miles to the northwest, with these ranges being visible from the campus only when atmospheric conditions permit (UCR 2005).

#### 4.1.2.4 Site Viewshed

For purposes of this study, the project viewshed is defined as the general area from which the EH&S Expansion and Parking Lot 27 projects, the Corporation Yard, and the existing EH&S buildings would be visible to the public. The EH&S Expansion and Parking Lot 27 projects would be visible to motorists along Watkins Drive and Linden Street; the Corporation Yard is and would continue to be visible to motorists along Watkins Drive and Linden Street; and the existing EH&S facility is and would continue to be partially visible to motorists along South Campus Drive and along the I-215/SR-60 freeway.

#### 4.1.2.5 Scenic Vistas

Scenic vistas may generally be described as panoramic views (visual access to a large geographic area, for which the field of view can be wide and extend into the distance) or focal views (visual access to a particular object, scene, setting, or feature of interest). Panoramic views are typically associated with vantage points that provide a sweeping geographic orientation and may include urban skylines, valleys, or mountain ranges. In addition, these views are typically available from a publicly accessible viewpoint, such as roads or public gathering places, rather than views available from private residences. As discussed in the Initial Study prepared for the proposed project (**Appendix 1.0**), the project site does not form part of a scenic vista available from public viewpoints. There are broad views of the Box Spring Mountains from the project site and its surroundings.

#### 4.1.2.6 Light and Glare

The primary existing sources of light and glare in the vicinity of the EH&S Expansion and Parking Lot 27 project site are security lighting for the TAPS yard and the Corporation Yard, streetlights along Watkins Drive and Linden Street, and pole-mounted lighting for the recreational fields adjacent to the south. In the vicinity of the existing EH&S facility, sources of light and glare include exterior and interior lighting from nearby buildings, security lighting, and streetlights on adjacent roadways (including the I-215/SR-60 freeway). Other sources of glare include reflective surfaces such as pavement, parked vehicles, and building exteriors. Glare into buildings from the reflected sunlight off of adjacent buildings is generally minimal in the vicinity of the project sites due to the generally low density of development, the relatively low average height of buildings (e.g., one to six stories), the extent of mature trees and landscaping, and the limited use of reflective glass surfaces in existing buildings.

#### 4.1.2.7 UCR Design Review Process

The UCR campus uses a design review process for all campus development projects prior to approval. This design process is performed through various campus committees and includes evaluation of factors such as the proposed site, compatibility with adjacent uses, building mass and form, roof profile, architectural details and fenestration, texture, color, quality of building materials, landscaping, and focal views that could be affected by each proposed project.

#### 4.1.3 REGULATORY FRAMEWORK

There are no federal, State, or local regulations related to aesthetics that are applicable to the UCR campus.

#### 4.1.4 IMPACTS AND MITIGATION MEASURES

##### 4.1.4.1 Significance Criteria

The impacts of the proposed projects and related projects on aesthetics would be considered significant if they would exceed the following Standards of Significance, in accordance with Appendix G of the *State CEQA Guidelines* and the UC CEQA Handbook:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.

##### 4.1.4.2 CEQA Checklist Items Adequately Addressed in the Initial Study

The analysis in the Initial Study prepared for the proposed projects and related projects and circulated with the NOP concluded that further analysis of the following issues was not required in the EIR:

- Have a substantial adverse effect on a scenic vista.

**EH&S Expansion and Parking Lot 27:** The proposed EH&S Expansion building would not block any current views in the area surrounding the project site. The UCR East Campus, the hills to the southeast, and the Box Springs Mountains can be viewed from the project site itself. Although these views would be



partially or entirely blocked from areas close to the proposed building, these areas are generally not public viewpoints, and views of the Box Springs Mountains would continue to be widely available from areas around the project site. In addition, the Glen Mor 2 Student Housing project, currently under construction, would be five stories and would limit future views south and southeast of the project site. As discussed above, the project site does not form part of a scenic vista and changes to this area would not affect scenic vistas.

**Corporation Yard:** The related Corporation Yard reorganization project would include demolition of a warehouse building and the Mail Services building and construction of a warehouse and storage/activity areas. These features would be similar in scale and character to those already present on site, and would not significantly alter views from or of the site. The Corporation Yard does not form part of a scenic vista and changes to this area would not affect scenic vistas.

**Reuse of Existing EH&S Facility:** This related project would involve interior renovations to the existing buildings and removal of the existing storage trailers from the site. These changes would not alter the existing developed character of the site, and would not include construction of new buildings that could block views from site or its surroundings.

Based on these factors, impacts to scenic vistas would be less than significant. The Initial Study also found that cumulative impacts related to scenic vistas would be less than significant.

- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway.

Because there are no scenic highways in the vicinity of the campus, implementation of the proposed EH&S Expansion and Parking Lot 27 projects and related projects would not adversely affect a scenic highway, and no impact would occur. The Initial Study also found that cumulative impacts related to scenic highways would be less than significant.

The Initial Study also concluded that the proposed projects and related projects would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area. However, in response to comments received during the public scoping period, this topic is addressed under Impact 4.1-2 below.

#### 4.1.4.3 Methodology

This EIR evaluates aesthetic impacts by comparing the existing visual condition of the project site with the anticipated visual condition after development of the proposed projects and assessing the degree of

change that the project would bring about. The potential for degradation of visual character of the project sites and their surroundings is evaluated in terms of a substantial adverse change in the visual character or quality. Visual change that is compatible with existing patterns of development would not be considered to constitute a significant impact.

#### 4.1.4.4 Relevant LRDP Mitigation Measures, Planning Strategies, and Programs and Practices

The 2005 LRDP EIR and the LRDP Amendment 2 EIR (2011) identify a series of Planning Strategies (PS) and Programs and Practices (PP) that are relevant to aesthetics and include Mitigation Measures to reduce impacts of buildout of the 2005 LRDP as amended. These measures are considered part of the proposed projects and related projects for purposes of this analysis. The full list of PSs, PPs, and LRDP Mitigation Measures is included in **Appendix 1.0** of this EIR, and those relevant to aesthetic considerations for the proposed projects and related projects are provided in each impact discussion below.

#### 4.1.4.5 Project Impacts and Mitigation Measures

**Impact 4.1-1                    Implementation of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not substantially degrade the visual character or quality of the campus and the immediate surrounding area. The impact would be less than significant.**

##### *Proposed Projects*

The sites of the proposed EH&S Expansion and Parking Lot 27 projects are visible from public viewpoints along Watkins Drive and from the rear yards of residences along the north side of Watkins Drive. The existing primarily bare and non-landscaped appearance of the proposed EH&S Expansion site would be replaced with the proposed 30-foot-high building and landscaping and, for Parking Lot 27, with pavement and landscaping. The visual character of the site would be changed; however, as shown in **Figure 3.0-7** (see **Section 3.0, Project Description**), the proposed development would be similar in scale and type to nearby campus buildings which include the existing one-story Corporation Yard buildings, as well as nearby parking lots and multi-story student residential buildings (see **Figures 4.1-1** and **4.1-2**). It would generally be consistent with the density and appearance of surrounding developed areas.

Each portion of the proposed project would be (or would continue to be) viewed against the backdrop of, and as an element of, the surrounding urban development.



View East Across Lot 27 Site with Linden Street Alignment and Palm Trees



View North Across EH&S Facility Expansion Site with Watkins Drive, BNSF Rail Line, and Adjacent Residential Area Across Watkins Drive



View Northwest From Linden Street of EH&S Facility Expansion Site and Corporation Yard With Residential Area Across Watkins Drive



View Southwest Across EH&S Facility Expansion Site and Corporation Yard

SOURCE: Impact Sciences, Inc. - 2011

FIGURE 4.1-1

Site Photographs



View South with Lot 27 Site and Linden Street Palm Trees, Nearby Recreational Fields in Foreground and Box Springs Mountains in Background



View Southeast from Linden Street with Campus Lot 20 and Glen Mor Student Apartments in Background



View Northeast Across Lot 27 Site, With Cars Parked Along Watkins Drive, BNSF Rail Line, Adjacent Residential Area, and Box Springs Mountains in Background



View Southwest Across Linden Street With Campus Lot 21 and Pentland Hills Student Residences in Background

SOURCE: Impact Sciences, Inc. – 2011

FIGURE 4.1-2



1031-002-09/11

Project Area Photographs

Future development of the campus, including the proposed EH&S Expansion and Parking Lot 27 projects, would be guided by a range of LRDP Planning Strategies (PS). The following LRDP Planning Strategies are relevant to preservation or enhancement of the visual character or quality of the project sites and the surrounding areas:

- PS Open Space 4                      Provide landscaped buffers and setbacks along campus edges, such as Valencia Hill Drive and its extension south of Big Springs Road, Martin Luther King Boulevard, and the I-215/SR-60 freeway.
- PS Campus & Community 1        Provide sensitive land use transitions and landscaped buffers where residential off campus neighborhoods might experience noise or light from UCR activities.

The proposed EH&S Expansion and Parking Lot 27 projects would be consistent with the relevant LRDP Planning Strategies as the proposed facility would include planting evergreen trees along the site frontage on Watkins Drive, which forms the northeast edge of the campus. This area currently has no landscaping or other vegetation. The new landscaped edge would provide visual screening of the new building and parking lot as well as reduce noise and light effects that could be perceived from nearby locations.

With continued implementation of the following existing campus Programs and Practices, the visual character and quality of the campus and surrounding area would also be preserved and enhanced:

- PP 4.1-1                                The Campus shall provide design professionals with the 2007 Campus Design Guidelines and instructions to implement the guidelines, including those sections related to use of consistent scale and massing, compatible architectural style, complementary color palette, preservation of existing site features, and appropriate site and exterior lighting design.

(This is identical to Land Use PP 4.9-1(a).)

- PP 4.1-2(a)                            The Campus shall continue to provide design professionals with the 2007 Campus Design Guidelines and instructions to develop project-specific landscape plans that are consistent with the Guidelines with respect to the selection of plants, retention of existing trees, and use of water conserving plants, where feasible.

(This is identical to Land Use PP 4.9-1(b).)

The proposed projects have been designed to be consistent with the 2007 Campus Design Guidelines. As described above, landscaping would retain existing palm trees on the Parking Lot 27 site and would

include plants selected to conserve water. An additional setback along the project frontage is not needed because of the considerable existing distance (over 100 feet) to the nearest off-campus residences.

For the reasons discussed above, and with implementation of relevant LRDP Planning Strategies and continued implementation of existing campus Programs & Practices, the proposed projects would not degrade the existing visual character or quality of the project site and the surroundings, and a less than significant impact would occur.

### *Related Projects*

Reorganization of the adjacent Corporation Yard, which includes relevant 2005 LRDP Planning Strategies and Programs and Practices, would include demolition of a warehouse building and the Mail Services building and construction of a warehouse and storage/activity areas similar in scale and character to those already present on site. The landscaping proposed as part of the EH&S Expansion and Parking Lot 27 projects would also add a row of trees along the existing Corporation Yard fencing. Reuse of the existing EH&S facility would involve interior renovations and removal from the site of the existing storage containers. These changes would not substantially alter the existing developed character of these two sites, and new landscaping adjacent to the Corporation Yard would provide some additional visual screening. Development at each site would be substantially similar in appearance and scale to its surroundings, and would not substantially degrade the visual character of each site or its surroundings. Impacts related to visual character and quality for the related projects would thus be less than significant.

**Mitigation Measures:** No mitigation is required.

**Impact 4.1-2                      Implementation of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area. The impact would be less than significant.**

### *Proposed Projects*

The EH&S Expansion and Parking Lot 27 projects are proposed at a site that currently does not have any light sources, although nearby sources of light and glare include the buildings and outdoor lighting of the adjacent Corporation Yard, pole lighting for the adjacent recreational fields, street lighting along Watkins Drive and Linden Street, and interior and exterior lighting at the nearby campus residential buildings. Under the proposed projects, which include relevant 2005 LRDP Planning Strategies and Programs and Practices, new light sources would include building interior and exterior lighting for the EH&S

Expansion and parking lot lighting in Parking Lot 27. Building exterior lighting would consist of wall-mounted, downward-directed fixtures designed to light only the immediate area. The building's loading dock would be located within the enclosed Corporation Yard area and exterior lighting in this area would be screened by fencing and landscaping along Watkins Drive. The Parking Lot 27 lighting would consist of 7 double-arm and 4 single-arm 29-foot-high light standards using induction lamps. The lights would be downward-directed and shielded to reduce light spillage onto neighboring areas. Additionally, there would be approximately 18 10-foot-high directed and shielded walkway lights. New sources of daytime glare on the EH&S Expansion site and Parking Lot 27 would include the building exteriors and roof and cars parked in or driving near the building and parking lot.

The proposed project site is located in an area where there is already development and associated light and glare sources. Future development on the campus, including the proposed project, would continue existing campus programs and practices, such as PP 4.1-1 and PP 4.1-2(a) and (b), which require that buildings be designed to be consistent with the Campus Design Guidelines. The proposed projects, like all future development on the campus, would be required to implement LRDP mitigation measure MM 4.1-3(a), which would require incorporation of design features that would minimize glare, and LRDP mitigation measure MM 4.1-3(b), which would require that lighting be directed to the intended illumination site to reduce spill onto adjacent areas. For these reasons, the implementation of the proposed projects would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area, and this impact would be less than significant.

The proposed EH&S Expansion and Parking Lot 27 would include landscaped setbacks to provide both distance and visual screening, as required by LRDP PS Open Space 4 and PS Campus and Community 1. During nighttime conditions from public viewpoints along Watkins Drive, parking lot lighting, as well as cars and car headlights at Parking Lot 27, would generally be seen against the backdrop of the lighted recreational fields and the lights and buildings of nearby student residential complexes. Under these conditions, the parking lot lighting would be a relatively minor element in the nighttime landscape and impacts associated with such lighting would be less than significant.

The EH&S Expansion would be a low-rise building with exteriors finished with a combination of brick facing and stucco with low-reflectivity coatings to reduce glare, as well as relatively small areas of exterior glass. The building would thus not be a significant source of daytime glare. The addition of parked cars in Parking Lot 27, which would have a capacity of about 50 cars, would cause a minor increase in sources of daytime glare in the immediate vicinity. However, the parking stalls would be angled relative to Watkins Drive, and the periods of maximum glare when sunlight is reflected from windshields directly across Watkins Drive would generally be limited to early morning and late

afternoon hours when the sun is low. Trees and other landscaping to be planted along Watkins Drive would provide shielding of vehicle lights and glare from vehicle windows and surfaces. In addition, because the lot would accommodate a small number of additional cars, conditions would be similar to those already present, with cars parked along Watkins Drive and other nearby roadways, and the increase would not be significant. EH&S Expansion and Parking Lot 27 project compliance with the relevant Planning Strategies and Mitigation Measures would maintain the impacts of the proposed projects at a less than significant level.

### *Related Projects*

The Corporation Yard and the existing EH&S facility have existing light sources, including building interior and exterior lights and parking lot/driveway lighting. Because the Corporation Yard reorganization and reuse of the existing EH&S facility, which include relevant 2005 LRDP Planning Strategies and Programs and Practices, are proposed to involve uses and development very similar to those currently present, light and glare conditions on those two sites would be largely unchanged. These related project sites are located in areas where there is already development and associated light and glare sources. Development that could occur under the related projects would include construction of a new warehouse building at the Corporation Yard, with associated interior and exterior lighting, to replace the existing Warehouse #2. It could also involve relocation or replacement of some other outdoor storage and support areas that have exterior lighting. This related project would continue existing campus programs and practices, such as PP 4.1-1 and PP 4.1-2(a) and (b), and would be required to implement LRDP mitigation measures MM 4.1-3(a) and 4.1-3(b), discussed above. Reuse of the existing EH&S facility would not involve any changes to existing light and glare sources. For these reasons, the related projects would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area, and this impact would be less than significant.

**Mitigation Measures:** No mitigation is required.

## 4.1.5 CUMULATIVE IMPACTS

The geographic context for the analysis of cumulative aesthetic impacts includes the area immediately surrounding the East Campus that can be viewed together with development on the project site.

### **Impact 4.1-3**

**Cumulative development, including the proposed EH&S Expansion, Parking Lot 27, and related projects, would not substantially degrade the visual character or quality of the campus and the immediate surrounding area. The contribution of the proposed projects to this cumulative impact would not be cumulatively considerable.**



#### 4.1.5.1 Near-Term Cumulative Impacts

Near term cumulative projects in the viewshed of the proposed EH&S Expansion and Parking Lot 27 include the Glen Mor 2 student residential development, currently under construction, and the proposed Perris Valley rail line project. Glen Mor 2 will add apartment-style residential buildings up to five stories high and a parking structure to an area south of the proposed EH&S Expansion and Parking Lot 27 site characterized by similar development. The rail project would involve minor upgrades to an existing rail line along the north side of Watkins Drive, across the roadway from the proposed EH&S Expansion and Parking Lot 27 and the existing Corporation Yard, as well as an increase in the number of trains operating on the line. Both of these projects would be consistent with existing conditions and would not cause significant changes in the visual character or quality of the area. The Glen Mor 2 EIR found that light and glare effects would be less than significant with mitigation (UCR 2011b), and the Perris Valley rail project would involve only a small increase in the number of trains running on the existing rail line. There would thus be no significant cumulative impact from the proposed projects and related projects combined with these near term projects, and the contribution of the proposed projects and related projects would not be cumulatively considerable.

#### 4.1.5.2 Long-Term Cumulative Impacts

The area surrounding the EH&S Expansion and Parking Lot 27 projects site is already built out, and no additional development in this portion of the campus is anticipated in the 2005 LRDP, as amended. The 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR (2011) concluded that impacts associated with visual character or quality would not be cumulatively considerable on a regional scale, as reflected in both the City of Riverside and the County of Riverside General Plan EIRs. Development under the 2005 LRDP, as amended, would be visually consistent with the surroundings and would not result in a cumulative impact to visual character or quality. Development under the proposed projects and related projects would also be expected to be visually consistent with the surroundings and thus would not alter the conclusions of the previous cumulative impact analysis.

As stated in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR (2011), LRDP-related projects could result in the creation of new sources of substantial light or glare that could affect day or nighttime views. Consequently, a significant cumulative impact could occur. However, with implementation of relevant LRDP Planning Strategies, Programs and Practices, and Mitigation Measures, the contribution of campus development under the 2005 LRDP, as amended, to a cumulative light and glare impact would not be cumulatively considerable. The proposed projects would also add new sources of light and glare to the campus, but for the reasons discussed above, as well as those presented in the 2005 LRDP EIR and

Amendment 2 EIR, the contribution of the proposed projects and related projects would not be cumulatively considerable. The impact would be less than significant.

**Mitigation Measures:** No mitigation is required.

### 4.2.1 INTRODUCTION

This section evaluates the potential impacts on air quality resulting from implementation of the proposed Environmental Health & Safety (EH&S) Expansion, Parking Lot 27 (proposed projects), and related Corporation Yard reorganization and existing EH&S buildings re-use (related projects). This includes the potential for the proposed projects and related projects to conflict with or obstruct implementation of the applicable air quality plan, to violate an air quality standard or contribute substantially to an existing or projected air quality violation, to result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment, to expose sensitive receptors to substantial pollutant concentrations, or to create objectionable odors affecting a substantial number of people.

Data used to prepare this section were taken from various sources, including the South Coast Air Quality Management District (SCAQMD) *CEQA Air Quality Handbook* and the 2007 Air Quality Management Plan (AQMP), as amended; and the UC Riverside 2005 LRDP EIR. Bibliographic entries for reference materials appear in **Section 8.0, References**.

In response to the Notice of Preparation, a member of the public commented that the Air Quality analysis should address the potential for toxic fumes or odors to be released from the facility and affect nearby residents both on and off campus and stated that the analysis should address the potential for traffic from the project to create high concentrations of carbon monoxide (CO) and other air pollutants. These issues are addressed in the impact discussions below. The potential for release of toxic air emissions is discussed in greater detail in **Section 4.4, Hazards and Hazardous Materials**.

### 4.2.2 EXISTING CONDITIONS

#### 4.2.2.1 Existing Regional Air Quality

##### *Background*

The project site is located in the South Coast Air Basin (SoCAB or Air Basin), which consists of Orange County, Los Angeles County (excluding the Antelope Valley portion), and the western, non-desert portions of San Bernardino and Riverside counties.

Air quality is affected by both the rate and location of pollutant emissions. Meteorological conditions such as wind speed, wind direction, solar radiation, atmospheric stability, and local topography heavily influence air quality by affecting the movement and dispersal of pollutants. Predominant meteorological

conditions in the SoCAB are primarily light winds and shallow vertical mixing due to low-altitude temperature inversion that exists in the Air Basin on several days each year. These conditions, when coupled with the surrounding mountain ranges, hinder the regional dispersion of air pollutants. The strength and location of a semi-permanent, high-pressure cell over the northern Pacific Ocean is a primary climatological influence on the SoCAB, as is the ocean, which moderates the local climate by acting like a large heat reservoir. As a result of these influences, warm summers, mild winters, infrequent rainfall, and moderate humidity typify climatic conditions through most of the Air Basin. These meteorological conditions, in combination with regional topography, are conducive to the formation and retention of ozone and urban smog.

Annual average temperatures throughout the SoCAB vary from the low to middle 60s degrees Fahrenheit (°F). However, due to decreased marine influence, the eastern portion of the Air Basin shows greater variability in average annual minimum and maximum temperatures. January is the coldest month throughout the SoCAB, and annual average minimum temperatures are 48°F in downtown Los Angeles, 49°F in San Bernardino, and 55°F in Long Beach. July and August are the warmest months in the SoCAB, and annual average maximum temperatures are 83°F in downtown Los Angeles, 95°F in San Bernardino, and 85°F in Long Beach. All portions of the SoCAB have recorded maximum temperatures above 100°F.

Although the climate of the SoCAB can be characterized as semi-arid, the air near the land surface is moist on most days because of the presence of a marine layer. Humidity restricts visibility in the SoCAB, also increasing the conversion of sulfur dioxide (SO<sub>2</sub>) to sulfates. The annual average relative humidity is 71 percent along the coast and 59 percent inland. Because the ocean effect is dominant, periods of heavy early morning fog are frequent and low stratus clouds are a characteristic feature. These effects decrease with distance from the coast. More than 90 percent of the region's rainfall occurs from November through April. Annual average rainfall varies from approximately 9 inches in Riverside to 14 inches in downtown Los Angeles. Monthly and yearly rainfall totals are variable. Summer rainfall usually consists of widely scattered thundershowers near the coast and slightly heavier shower activity in the eastern portion of the Air Basin near the mountains.

### ***Regional Air Quality***

Air pollutants of concern in the SoCAB are primarily generated by two categories of sources: stationary and mobile. Stationary sources are known as "point sources," which have one or more emission sources at a single facility, or "area sources," which are widely distributed emissions. Point sources are usually associated with manufacturing and industrial uses and include sources such as refinery boilers or combustion equipment that produces electricity or process heat. Examples of area sources include residential water heaters, painting operations, lawn mowers, agricultural fields, landfills, and consumer products, such as lighter fluid or hair spray. Mobile sources refer to operational and evaporative

emissions from motor vehicles. Within the SoCAB, mobile sources account for approximately 59 percent of volatile organic compound (VOC) emissions, 90 percent of nitrogen oxide (NO<sub>x</sub>) emissions, 95 percent of carbon monoxide (CO) emissions, 55 percent of sulfur oxides (SO<sub>x</sub>) emissions, 15 percent of respirable particulate matter (PM<sub>10</sub>) emissions, and 34 percent of fine particulate matter (PM<sub>2.5</sub>) emissions (CARB 2009).

The criteria pollutants relevant to the proposed project and of concern in the SoCAB are briefly described below. While VOCs are not considered to be criteria pollutants, they are widely emitted from land development projects and participate in photochemical reactions in the atmosphere to form ozone (O<sub>3</sub>); therefore, VOCs are relevant to the proposed project and are of concern in the SoCAB.

- **Ozone (O<sub>3</sub>).** O<sub>3</sub> is a gas that is formed when VOCs and nitrogen oxides (NO<sub>x</sub>), both byproducts of internal combustion engine exhaust and other sources, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.
- **Volatile Organic Compounds (VOCs).** VOCs are compounds comprised primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Adverse effects on human health are not caused directly by VOCs, but rather by reactions of VOCs to form secondary air pollutants, including ozone. VOCs are also referred to as reactive organic compounds (ROCs) or reactive organic gases (ROGs). VOCs themselves are not “criteria” pollutants; however, they contribute to formation of O<sub>3</sub>.
- **Nitrogen Dioxide (NO<sub>2</sub>).** NO<sub>2</sub> is a reddish-brown, highly reactive gas that is formed in the ambient air through the oxidation of nitric oxide (NO). NO<sub>2</sub> is also a byproduct of fuel combustion. The principal form of nitrogen oxide produced by combustion is NO, but NO reacts quickly to form NO<sub>2</sub>, creating the mixture of NO and NO<sub>2</sub> referred to as NO<sub>x</sub>. NO<sub>2</sub> acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO<sub>x</sub> is only potentially irritating. NO<sub>2</sub> absorbs blue light, the result of which is a brownish-red cast to the atmosphere and reduced visibility.
- **Carbon Monoxide (CO).** CO is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during winter mornings, with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines and motor vehicles operating at slow speeds are the primary source of CO in the Air Basin, the highest ambient CO concentrations are generally found near congested transportation corridors and intersections.
- **Sulfur dioxide (SO<sub>2</sub>).** SO<sub>2</sub> is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high-sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When sulfur dioxide oxidizes in the atmosphere, it forms sulfates (SO<sub>4</sub>).

- **Respirable Particulate Matter (PM10).** PM10 consists of extremely small, suspended particles or droplets 10 micrometers or smaller in diameter. Some sources of PM10, like pollen and windstorms, are naturally occurring. However, in populated areas, most PM10 is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.
- **Fine Particulate Matter (PM2.5).** PM2.5 refers to particulate matter that is 2.5 micrometers or smaller in size. The sources of PM2.5 include fuel combustion from automobiles, power plants, wood burning, industrial processes, and diesel-powered vehicles such as buses and trucks. These fine particles are also formed in the atmosphere when gases such as sulfur dioxide, NO<sub>x</sub>, and VOCs are transformed in the air by chemical reactions.
- **Lead (Pb).** Pb occurs in the atmosphere as particulate matter. The combustion of leaded gasoline is the primary source of airborne lead in the Air Basin. The use of leaded gasoline is no longer permitted for on-road motor vehicles, so most such combustion emissions are associated with off-road vehicles such as racecars that use leaded gasoline. Other sources of Pb include the manufacturing and recycling of batteries, paint, ink, ceramics, and ammunition, and secondary lead smelters.

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for setting the National Ambient Air Quality Standards (NAAQS). The air quality of a region is considered to be in attainment of the NAAQS if the measured ambient air pollutant levels are not exceeded more than once per year, except for O<sub>3</sub>, PM10, PM2.5 and those based on annual averages or arithmetic mean. The NAAQS for O<sub>3</sub>, PM10, and PM2.5 are based on statistical calculations over one- to three-year periods, depending on the pollutant. The California Air Resources Board (CARB) is the State agency responsible for setting the California Ambient Air Quality Standards (CAAQS). The air quality of a region is considered to be in attainment of the CAAQS if the measured ambient air pollutant levels for O<sub>3</sub>, CO, NO<sub>2</sub>, SO<sub>2</sub>, PM10, PM2.5, and lead are not exceeded, and other standards are not equaled or exceeded at any time in any consecutive three-year period. The NAAQS and CAAQS for each of the monitored pollutants and their effects on health are summarized in **Table 4.2-1, Ambient Air Quality Standards**.

**Table 4.2-1  
Ambient Air Quality Standards**

Air Pollutant	Concentration/Averaging Time		Most Relevant Health Effects
	State Standard (CAAQS)	Federal Primary Standard (NAAQS)	
Ozone	0.09 ppm, 1-hr. avg. 0.070 ppm, 8-hr avg.	0.075 ppm, 8-hr avg. (three-year average of annual 4 <sup>th</sup> -highest daily maximum)	(a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage
Nitrogen Dioxide <sup>1</sup>	0.18 ppm, 1-hr avg. 0.030 ppm, annual arithmetic mean	0.100 ppm, 1-hr avg. (three-year avg. of the 98 <sup>th</sup> percentile of the daily maximum 1-hour avg.) 0.053 ppm, annual arithmetic mean	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extrapulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration
Carbon Monoxide	20 ppm, 1-hr avg. 9.0 ppm, 8-hr avg.	35 ppm, 1-hr avg. (not to be exceeded more than once per year) 9 ppm, 8-hr avg. (not to be exceeded more than once per year)	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses
Sulfur Dioxide <sup>2</sup>	0.25 ppm, 1-hr. avg. 0.04 ppm, 24-hr avg.	0.075 ppm, 1-hr avg. (three-year avg. of the 99 <sup>th</sup> percentile)	Bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma
Respirable Particulate Matter (PM <sub>10</sub> )	50 µg/m <sup>3</sup> , 24-hr avg. 20 µg/m <sup>3</sup> , annual arithmetic mean	150 µg/m <sup>3</sup> , 24-hr avg. (not to be exceeded more than once per year on average over three years)	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in the elderly

Air Pollutant	Concentration/Averaging Time		Most Relevant Health Effects
	State Standard (CAAQS)	Federal Primary Standard (NAAQS)	
Fine Particulate Matter (PM <sub>2.5</sub> )	12 µg/m <sup>3</sup> , annual arithmetic mean	35 µg/m <sup>3</sup> , 24-hr avg. (three-year average of 98th percentile) 15 µg/m <sup>3</sup> , annual arithmetic mean (three-year average)	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in the elderly
Lead <sup>3</sup>	1.5 µg/m <sup>3</sup> , 30-day avg.	1.5 µg/m <sup>3</sup> , calendar quarter 0.15 µg/m <sup>3</sup> , three-month rolling average	(a) Increased body burden; and (b) Impairment of blood formation and nerve conduction
Visibility-Reducing Particles	Reduction of visual range to less than 10 miles at relative humidity less than 70%, 8-hour avg. (10 AM–6 PM)	None	Visibility impairment on days when relative humidity is less than 70%.
Sulfates	25 µg/m <sup>3</sup> , 24-hr avg.	None	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage
Hydrogen Sulfide	0.03 ppm, 1-hr avg.	None	Odor annoyance
Vinyl Chloride <sup>3</sup>	0.01 ppm, 24-hr avg.	None	Known carcinogen

Source: South Coast Air Quality Management District, *Final Program Environmental Impact Report for the 2007 Air Quality Management Plan*, (2007) Table 3.1-1, p. 3.1-3.

µg/m<sup>3</sup> = microgram per cubic meter.

ppm = parts per million by volume.

<sup>1</sup> On January 25, 2010, the U.S. EPA promulgated a new 1-hour NO<sub>2</sub> standard. The new 1-hour standard is 0.100 parts per million (188 micrograms per cubic meter [µg/m<sup>3</sup>]) and became effective on April 12, 2010.

<sup>2</sup> On June 3, 2010, the U.S. EPA issued a new 1-hour SO<sub>2</sub> standard. The new 1-hour standard is 0.075 parts per million (196 µg/m<sup>3</sup>). The U.S. EPA also revoked the existing 24-hour and annual standards citing a lack of evidence of specific health impacts from long-term exposures. The new 1-hour standard becomes effective 60 days after publication in the Federal Register.

<sup>3</sup> CARB has identified lead and vinyl chloride as “toxic air contaminants” with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

In addition to criteria pollutants, the SCAQMD periodically assesses levels of toxic air contaminants in the SoCAB. TACs are defined by California Health and Safety Code Section 39655:

*“Toxic air contaminant” means an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health. A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the federal act (42 U.S.C. Sec. 7412(b)) is a toxic air contaminant.*



Between April 2004 and March 2006, the SCAQMD conducted the Multiple Air Toxics Exposure Study III (MATES III), which is a follow-up to previous MATES I and II air toxics studies conducted in the South Coast Air Basin. The MATES III Final Report was issued in September 2008. The MATES III study, based on actual monitored data throughout the Air Basin, consisted of several elements. These included a monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize carcinogenic risk across the SoCAB from exposure to toxic air contaminants. The MATES III study applied a 2-kilometer (1.24-mile) grid over the South Coast Air Basin and reported carcinogenic risk within each grid space (covering an area of 4 square kilometers or 1.54 square miles). The study concluded that the average of the modeled air toxics concentrations measured at each of the monitoring stations in the SoCAB equates to a background cancer risk of approximately 1,200 in 1,000,000 primarily due to diesel exhaust. The MATES III study also found lower ambient concentrations of most of the measured air toxics compared to the levels measured in the previous MATES II study conducted during 1998 and 1999. Specifically, benzene and 1,3-butadiene, pollutants generated mainly from vehicles, were down 50 percent and 73 percent, respectively (SCAQMD 2008b). The reductions were attributed to air quality control regulations and improved emission control technologies.

#### 4.2.2.2 Existing Local Air Quality

The SCAQMD has divided the SoCAB into Source Receptor Areas in which air quality monitoring stations are operated. The project site is located in the Metropolitan Riverside Source Receptor Area (SRA 23). The monitoring stations for this area are located at 5888 Mission Boulevard in the City of Riverside (Station No. 4144), just over 6 miles northwest of the project site, and at 7002 Magnolia Avenue, also in the City of Riverside (Station No. 4146). These stations monitor emission levels of CO, O<sub>3</sub>, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>.

**Table 4.2-2, Ambient Pollutant Concentrations Registered in SRA 23 (Station Nos. 4144 and 4146)**, lists the ambient pollutant concentrations registered and the exceedances of State and federal standards that have occurred at the abovementioned monitoring stations from 2007 through 2009, the most recent years in which data is available from the SCAQMD.<sup>1</sup> As shown, the SRA has registered values above State and federal standards for O<sub>3</sub>, the State standard for PM<sub>10</sub>, and the federal standard for PM<sub>2.5</sub>. Values for lead and sulfate are not presented in the table below since ambient concentrations are well below the State standards in the area. Hydrogen sulfide, vinyl chloride, and visibility reducing particles were not monitored by CARB or the SCAQMD in Riverside County during the period of 2007 to 2009.

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<sup>1</sup> The SCAQMD verifies the ambient air quality data before making it available on its website. Air pollutants levels determined to be caused by natural events (e.g., forest fires) are excluded because they do not count towards attainment of the air quality standards.

**Table 4.2-2  
Ambient Pollutant Concentrations Registered in SRA 23 (Station Nos. 4144 and 4146)**

Pollutant	Standards <sup>1</sup>	Year		
		2007	2008	2009
<b>OZONE (O<sub>3</sub>)</b>				
Maximum 1-hour concentration monitored (ppm)		0.131	0.146	0.116
Maximum 8-hour concentration monitored (ppm)		0.111	0.116	0.100
Number of days exceeding State 1-hour standard	0.09 ppm	31	54	25
Number of days exceeding State 8-hour standard	0.070 ppm	69	88	57
Number of days exceeding federal 8-hour standard <sup>2</sup>	0.075 ppm	46	64	35
<b>NITROGEN DIOXIDE (NO<sub>2</sub>)</b>				
Maximum 1-hour concentration monitored (ppm)		0.07	0.09	0.08
Annual average concentration monitored (ppm)		0.0206	0.0258	0.0200
Number of days exceeding State 1-hour standard	0.18 ppm	0	0	0
<b>CARBON MONOXIDE (CO)</b>				
Maximum 1-hour concentration monitored (ppm)		4	7	3
Maximum 8-hour concentration monitored (ppm)		2.1	2.0	1.8
Number of days exceeding 1-hour standard	20 ppm	0	0	0
Number of days exceeding 8-hour standard	9.0 ppm	0	0	0
<b>SULFUR DIOXIDE (SO<sub>2</sub>)</b>				
Maximum 1-hour concentration monitored (ppm)		0.02	0.01	0.01
Maximum 24-hour concentration monitored (ppm)		0.002	0.003	0.003
Number of days exceeding State 1-hour standard	0.25 ppm	0	0	0
Number of days exceeding State 24-hour standard	0.04 ppm	0	0	0
<b>RESPIRABLE PARTICULATE MATTER (PM<sub>10</sub>)</b>				
Maximum 24-hour concentration monitored (µg/m <sup>3</sup> )		118	115	77
Annual average concentration monitored (µg/m <sup>3</sup> )		54.6	46.6	42.5
Number of samples exceeding State standard	50 µg/m <sup>3</sup>	66	49	34
Number of samples exceeding federal standard	150 µg/m <sup>3</sup>	0	0	0
<b>FINE PARTICULATE MATTER (PM<sub>2.5</sub>)</b>				
Maximum 24-hour concentration monitored (µg/m <sup>3</sup> )		68.6	43.0	42.2
Annual average concentration monitored (µg/m <sup>3</sup> )		18.1	13.4	13.4
Number of samples exceeding federal standard	35 µg/m <sup>3</sup>	8	4	2

Source: South Coast Air Quality Management District, "Historical Data by Year – Air Quality," <http://www.aqmd.gov/smog/historicaldata.htm>. 2011.

<sup>1</sup> Parts by volume per million of air (ppm), micrograms per cubic meter of air (µg/m<sup>3</sup>), or annual arithmetic mean (aam).

<sup>2</sup> The 8-hour federal O<sub>3</sub> standard was revised from 0.08 ppm to 0.075 ppm in March 2008. The statistics shown are based on the 2008 standard of 0.075 ppm.

### 4.2.3 REGULATORY FRAMEWORK

Air quality within the Air Basin is addressed through the efforts of various federal, State, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through Comparative Risk Probabilities legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality within the Air Basin are discussed below.

#### 4.2.3.1 Federal Regulations

##### *Federal Clean Air Act*

The U.S. EPA is responsible for enforcing the federal Clean Air Act and the NAAQS. These standards identify levels of air quality for seven criteria pollutants: ozone (O<sub>3</sub>), CO, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and lead. The thresholds are considered to be the maximum concentrations of ambient (background) air pollutants determined safe to protect the public health and welfare with an adequate margin of safety.

As part of its enforcement responsibilities, the U.S. EPA requires each State with areas that do not meet the federal standards to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain federal standards. The SIP must integrate federal, State, and local plan components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the time frame identified in the SIP. CARB is required to describe in its SIP how the State will achieve federal standards by specified dates for each air basin that has failed to attain a NAAQS for any criteria pollutant. The SCAQMD has developed the *2007 AQMP*, which demonstrates how the region will attain the air quality standards set for in the Clean Air Act Amendments.

The extent of mitigation implementation of a given SIP depends on the severity of the air quality condition within the State or a specific air basin. The status of Riverside County with respect to attainment with the NAAQS is summarized in **Table 4.2-3, Ambient Air Quality Standard Designations – South Coast Air Basin (Riverside County)** below.

Further details on federal regulations for air quality can be found in the 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR (UCR 2005; UCR 2011).

### 4.2.3.2 State Regulations

#### *California Clean Air Act*

The California Air Resources Board (CARB) oversees air quality planning and control throughout California. It is primarily responsible for ensuring implementation of the California Clean Air Act, responding to the federal Clean Air Act planning requirements applicable to the State, and regulating emissions from motor vehicles and consumer products within the State. In addition, CARB sets health-based air quality standards and control measures for toxic air contaminants (TACs). Much of CARB's research goes toward automobile emissions, as they are primary contributors to air pollution in California. Under the State Clean Air Act, CARB has the authority to establish more stringent standards for vehicles sold in California and for various types of equipment available commercially. It also sets fuel specifications to further reduce vehicular emissions.

The California Clean Air Act established a legal mandate for air basins to achieve the CAAQS by the earliest practical date. These standards apply to the same seven criteria pollutants as the federal Clean Air Act and also include sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. The State standards are generally more stringent than the federal standards.

CARB supervises and supports the regulatory activities of local air quality districts as well as monitors air quality itself. Health and Safety Code Section 39607(e) requires CARB to establish and periodically review area designation criteria. These designation criteria provide the basis for CARB to designate areas of the State as attainment, nonattainment, or unclassified according to State standards. CARB makes area designations for 10 criteria pollutants: O<sub>3</sub>, CO, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, sulfates, lead, hydrogen sulfide, and visibility-reducing particles (CARB 2010).<sup>2</sup> The air quality of a region is considered to be in attainment of the State standards if the measured ambient air pollutant levels for O<sub>3</sub>, CO, NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> (1- and 24-hour), and lead are not exceeded, and all other standards are not equaled or exceeded at any time in any consecutive three-year period. The status of Riverside County with respect to attainment with the CAAQS is summarized in **Table 4.2-3, Ambient Air Quality Standard Designations South Coast Air Basin (Riverside County)** below.

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<sup>2</sup> According to California Health and Safety Code, Section 39608, "state board, in consultation with the districts, shall identify, pursuant to subdivision (e) of Section 39607, and classify each air basin which is in attainment and each air basin which is in nonattainment for any State ambient air quality standard." Section 39607(e) states that the State shall "establish and periodically review criteria for designating an air basin attainment or nonattainment for any State ambient air quality standard set forth in Section 70200 of Title 17 of the California Code of Regulations. California Code of Regulations, Title 17, Section 70200 does not include vinyl chloride; therefore, CARB does not make area designations for vinyl chloride.

**Table 4.2-3  
Ambient Air Quality Standard Designations  
South Coast Air Basin (Riverside County)**

<b>Pollutant</b>	<b>Federal Designation/Classification</b>	<b>State Designation/Classification</b>
Ozone (O <sub>3</sub> )	Nonattainment/Extreme	Nonattainment <sup>1</sup>
Carbon Monoxide (CO)	Attainment/Maintenance	Attainment
Nitrogen Dioxide (NO <sub>2</sub> )	Attainment/Maintenance	Nonattainment
Sulfur Dioxide (SO <sub>2</sub> )	Unclassified/Attainment	Attainment
Respirable Particulate Matter (PM <sub>10</sub> )	Nonattainment/Serious	Nonattainment
Fine Particulate Matter (PM <sub>2.5</sub> )	Nonattainment	Nonattainment
Lead (Pb)	Unclassified	Attainment
Sulfates (SO <sub>4</sub> )	--	Attainment
Hydrogen Sulfide (H <sub>2</sub> S)	--	Unclassified
Vinyl Chloride	--	Unclassified
Visibility-Reducing Particles	--	Unclassified

Source:

California Air Resources Board, "Area Designations Maps/State and National," <http://www.arb.ca.gov/deg/adm/adm.htm>. 2011.

<sup>1</sup> CARB has not issued area classifications based on the new State 8-hour standard. The previous classification for the 1-hour ozone standard was Severe.

### 4.2.3.3 Regional Regulations

#### *South Coast Air Quality Management District (SCAQMD)*

The management of air quality in the SoCAB is the responsibility of the SCAQMD. Under the Lewis-Presley Air Quality Act, the SCAQMD is responsible for bringing air quality in the areas under its jurisdiction into conformity with federal and State air quality standards. Specifically, the SCAQMD is responsible for monitoring ambient air pollutant levels throughout the Air Basin and for developing and implementing attainment strategies to ensure that future emissions will be within federal and State standards.

#### **SCAQMD CEQA Air Quality Handbook**

In 1993, the SCAQMD prepared its *CEQA Air Quality Handbook* to assist local government agencies and consultants in preparing environmental documents for projects subject to CEQA (SCAQMD 2009). The SCAQMD is in the process of developing an *Air Quality Analysis Guidance Handbook* to replace the *CEQA*

*Air Quality Handbook*. The documents describe the criteria that SCAQMD uses when reviewing and commenting on the adequacy of environmental documents. The Handbook recommends thresholds of significance in order to determine if a project will have a significant adverse environmental impact. Other important contents are methodologies for predicting project emissions and mitigation measures that can be taken to avoid or reduce air quality impacts. Although the Governing Board of the SCAQMD has adopted the *CEQA Air Quality Handbook*, and is in the process of developing a replacement document, it does not, nor does it intend to, supersede a local jurisdiction's CEQA procedures (SCAQMD 2007c).

Supplemental information has been adopted by the SCAQMD pursuant to the *Air Quality Analysis Guidance Handbook* update. These include revisions to the air quality significance thresholds and a new procedure referred to as "localized significance thresholds," which has been added as a significance threshold under the *Final Localized Significance Threshold Methodology* (SCAQMD 2008a). The applicable portions of the *CEQA Air Quality Handbook*, the *Air Quality Analysis Guidance Handbook* supplemental information, and other revised methodologies were used in preparing the air quality analysis in this section.

### **SCAQMD Air Quality Management Plan**

The SCAQMD is required to develop AQMPs describing how air quality in the Air Basin will be improved. In addition, the U.S. EPA requires that conformity budgets be established in the AQMP based on the most recent planning assumptions. The SCAQMD adopted the currently applicable *2007 Air Quality Management Plan* on June 1, 2007. CARB approved the AQMP as the comprehensive SIP component for the Air Basin on September 27, 2007. The purpose of the AQMP for the Air Basin (and those portions of the Salton Sea Air Basin under the SCAQMD's jurisdiction) is to set forth a comprehensive program that will lead these areas into compliance with federal and State air quality planning requirements for ozone and PM<sub>2.5</sub>. In addition, as part of the *2007 Air Quality Management Plan*, the SCAQMD requested U.S. EPA's approval of a "bump-up" to the "extreme" nonattainment classification of ozone for the Air Basin. The U.S. EPA approved the extreme nonattainment request on April 15, 2010.

### **SCAQMD Rules and Regulations**

The SCAQMD is responsible for limiting the amount of emissions that can be generated throughout the SoCAB by various stationary, area, and mobile sources. Specific rules and regulations adopted by the SCAQMD Governing Board limit the emissions that can be generated by various uses and activities and identify specific pollution reduction measures, which must be implemented in association with various uses and activities. These rules regulate the emissions of the federal and State criteria pollutants as well as

toxic air contaminants and acutely hazardous materials. The rules are also subject to ongoing refinement by SCAQMD.

Among the SCAQMD rules applicable to the proposed project are Rule 403 (Fugitive Dust), Rule 1113 (Architectural Coatings), and Rule 1403 (Asbestos Emissions from Demolition/Renovation Activities). These and other potentially applicable rules are presented below.

- **Rule 402 (Nuisance)** – This rule prohibits the discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.
- **Rule 403 (Fugitive Dust)** – This rule requires fugitive dust generators to implement Best Available Control Measures for all sources, and all forms of visible particulate matter are prohibited from crossing any property line. SCAQMD Rule 403 is intended to reduce PM10 emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust (see also Rule 1186).
- **Rule 1113 (Architectural Coatings)** – This rule requires manufacturers, distributors, and end-users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.
- **Rule 1121 (Control of Nitrogen Oxides from Residential Type, Natural Gas-Fired Water Heaters)** - This rule prescribes NO<sub>x</sub> emission limits for natural gas-fired water heaters with heat input rates less than 75,000 Btu per hour. It applies to manufacturers, distributors, retailers, and installers of natural gas-fired water heaters. In lieu of meeting these NO<sub>x</sub> limits, this rule allows emission mitigation fees to be collected from water heater manufacturers to fund stationary and mobile source emission reduction projects targeted at offsetting NO<sub>x</sub> emissions from water heaters that do not meet Rule 1121 emission standards.
- **Rule 1146.2 (Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters)** – This rule requires manufacturers, distributors, retailers, refurbishers, installers, and operators of new and existing units to reduce NO<sub>x</sub> emissions from natural gas-fired water heaters, boilers, and process heaters as defined in this rule.
- **Rule 1186 (PM10 Emissions from Paved and Unpaved Roads, and Livestock Operations)** – This rule applies to owners and operators of paved and unpaved roads and livestock operations. The rule is intended to reduce PM10 emissions by requiring the clean-up of material deposited onto paved roads, use of certified street sweeping equipment, and treatment of high-use unpaved roads (see also Rule 403).
- **Rule 1403 (Asbestos Emissions from Demolition/Renovation Activities)** – This rule requires owners and operators of any demolition or renovation activity and the associated disturbance of asbestos-containing materials, any asbestos storage facility, or any active waste disposal site to implement work practice requirements to limit asbestos emissions from building demolition and

renovation activities, including the removal and associated disturbance of asbestos-containing materials.

Stationary sources of emissions are subject to these rules and other rules and are regulated through the SCAQMD's permitting process. Through this permitting process, SCAQMD monitors the amount of stationary emissions being generated and uses this information in developing AQMPs. The proposed project would be subject to SCAQMD rules and regulations to reduce specific emissions and mitigate potential air quality impacts.

#### **Southern California Association of Governments**

SCAG is a council of governments for the Counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. As a regional planning agency, SCAG serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SCAG also serves as the regional clearinghouse for projects requiring environmental documentation under federal and State law. In this role, SCAG reviews projects to analyze their impacts on SCAG's regional planning efforts.

Although SCAG is not an air quality management agency, it is responsible for several air quality planning issues. Specifically, as the designated Metropolitan Planning Organization for the Southern California region, it is responsible, pursuant to Section 176(c) of the 1990 amendments to the Clean Air Act, for providing current population, employment, travel, and congestion projections for regional air quality planning efforts. The SCAG projections form the basis for the transportation components of the AQMP and are utilized in the preparation of air quality forecasts and the consistency analysis that is included in the AQMP.

### **4.2.4 IMPACTS AND MITIGATION MEASURES**

#### **4.2.4.1 Significance Criteria**

The impacts related to air quality from the proposed projects and related projects would be considered significant if they would exceed the following Standards of Significance, in accordance with Appendix G of the *State CEQA Guidelines* and the UC CEQA Handbook:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;



- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

The *State CEQA Guidelines* (Section 15064.7) provide that, when available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make determinations of significance. The potential air quality impacts of the proposed project are, therefore, evaluated according to thresholds developed by the SCAQMD in the *CEQA Air Quality Handbook*, *Air Quality Analysis Guidance Handbook*, and subsequent guidance, discussed below. These thresholds generally incorporate the checklist questions contained in Appendix G of the *State CEQA Guidelines*.

#### ***Construction Emissions***

Impacts related to construction emissions associated with the proposed projects and related projects would be considered significant if construction emissions would exceed the SCAQMD construction emissions thresholds specified in **Table 4.2-4, SCAQMD Daily Emissions Thresholds (Construction and Operations)**.

#### ***Operational Emissions***

The SCAQMD has recommended two sets of air pollution thresholds to assist lead agencies in determining whether or not the impact from operational-phase emissions of a proposed project would be significant. These are defined below as Primary and Secondary Thresholds. The SCAQMD recommends that a project's impacts be considered significant if either threshold is exceeded.

#### **Primary Thresholds**

Impacts related to operational emissions associated with the proposed project would be considered significant if its operational emissions exceed the limits specified in **Table 4.2-4**.

**Table 4.2-4**  
**SCAQMD Daily Emissions Thresholds (Construction and Operations)**

Significance Threshold	Pollutant (pounds per day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Construction	75	100	550	150	150	55
Operation	55	55	550	150	150	55

Source: South Coast Air Quality Management District, *Air Quality Significance Thresholds*, (2011).

### Secondary Thresholds

The SCAQMD also states that a project would have a significant air quality impact if operation of the project would exceed the following SCAQMD secondary operational thresholds:

- The project could interfere with the attainment of the federal or State ambient air quality standards by either creating an air quality violation or contributing to an existing or projected air quality violation;
- The project could result in population increases within an area, which would be in excess of that projected by SCAG in the AQMP, or increase the population in an area where SCAG has not projected that growth for the project's buildout year;
- The project could generate vehicle trips that cause a CO hotspot or the project could be occupied by sensitive receptors that are exposed to a CO hotspot;
- The project will have the potential to create, or be subjected to, an objectionable odor that could impact sensitive receptors; or
- The project will have hazardous materials on site and could result in an accidental release of toxic air emissions or acutely hazardous materials posing a threat to public health and safety. (This impact is discussed in **Section 4.4, Hazards and Hazardous Materials** of this EIR).

### Localized Significance Thresholds

The SCAQMD recommends the evaluation of localized air quality impacts to sensitive receptors in the immediate vicinity of the project site as a result of construction and operational activities. The thresholds are based on standards established by the SCAQMD in the *Final Localized Significance Threshold Methodology*. The thresholds for NO<sub>x</sub> and CO represent the allowable increase in concentrations above background levels in the vicinity of the project that would not cause or contribute to an exceedance of the relevant ambient air quality standards. The thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> are based on emission levels specified in SCAQMD rules so as to aid in progress toward attainment of the ambient air quality standards.

For project sites of 5 acres or less, the SCAQMD has established screening criteria/thresholds that can be used to determine the maximum allowable daily emissions that would satisfy the thresholds without project-specific dispersion modeling. The allowable emission rates depend on: (1) the SRA in which the project is located, (2) the size of the project site, and (3) the distance between the project site and the nearest sensitive receptor (e.g., residences, schools, hospitals). The project site is located in SRA 23 and is less than 5 acres; therefore, using the screening levels for a 5-acre project would result in a highly conservative analysis, as the thresholds would be set at a much lower level (MacMillan 2011). Furthermore, although earthmoving and construction activities would occur in different locations and phases over the construction period, the maximum daily amount of disturbed area during project construction is conservatively estimated to be the entire site (2.7 acres). The nearest off-site sensitive receptors are located approximately 75 meters to the south, with additional receptors approximately the same distance to the northeast. Since the SCAQMD screening tables provide values for sensitive receptors (residential land uses) located 50 and 100 meters from the project site but not 75 meters, a 50-meter distance was used to determine the screening criteria/threshold as a conservative assumption. A significant impact would occur during construction or operation if on-site emissions exceed the thresholds shown in **Table 4.2-5, Localized Significance Thresholds**.

**Table 4.2-5  
Localized Significance Thresholds**

Localized Significance Threshold	Pollutant (pounds per day) <sup>1</sup>			
	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Construction (On site)	200	1,262	20	6
Operational (On site)	200	1,262	5	2

Source: South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, (2008), Appendix C.

<sup>1</sup> The NO<sub>x</sub>LST thresholds contained in the SCAQMD lookup tables are based on emissions of NO<sub>x</sub> from construction of the Project and assume gradual conversion to NO<sub>2</sub> based on the distance from the Project site boundary.

### **Toxic Air Contaminants**

The SCAQMD states that a project would have a significant air quality impact if:

- The project could emit a toxic air contaminant regulated by SCAQMD rules or that is on a federal or State air toxic list;
- The project could be occupied by sensitive receptors within 0.25 mile of an existing facility that emits air toxics identified in SCAQMD Rule 1401; or

- The project could emit carcinogenic or toxic air contaminants that individually or cumulatively exceed the maximum individual cancer risk of 10 in 1 million.

### *Cumulative*

According to the SCAQMD, projects that individually exceed the construction and/or operational mass-based emissions thresholds would also result in a cumulatively considerable contribution to air quality impacts and would be considered cumulatively significant. If a project's emissions are not below the emission thresholds presented above, the SCAQMD *CEQA Air Quality Handbook* identifies three possible methods to determine the significance of a project's cumulative impact. The SCAQMD's methods are based on performance standards and emission reduction targets necessary to attain the federal and State air quality standards identified in the 2007 AQMP. However, one method is no longer recommended and supported by the SCAQMD and another method is not applicable as the SCAQMD repealed the underlying regulation (Regulation XV) after the *CEQA Air Quality Handbook* was published. Therefore, the only viable SCAQMD method is based on whether the rate of growth in average daily trips associated with the project exceeds the rate of growth in population.

#### **4.2.4.2 CEQA Checklist Items Adequately Addressed in the Initial Study**

The Initial Study deferred analysis of the air quality impacts of the proposed project and related projects to the EIR. Therefore, all of the CEQA checklist items are addressed in the following analysis.

#### **4.2.4.3 Methodology**

The proposed projects and related projects are evaluated in this EIR for potential impacts related to air quality, such as increases in construction or operational emissions, release of toxic air contaminants, or production of odorous emissions. While not a requirement of CEQA, the analysis of potential adverse air quality impacts in this EIR incorporates a conservative approach. This approach entails the premise that whenever the analysis requires that assumptions be made, the assumptions that result in the greatest reasonable adverse impacts are typically chosen. This method ensures that potential effects of the proposed projects and related projects are not understated.

The methodology used to evaluate the air quality impacts associated with construction and operation of the proposed projects and related projects is based on the SCAQMD's *CEQA Air Quality Handbook* (SCAQMD 2009). The California Emissions Estimator Model (CalEEMod) was used to estimate emissions during construction and operation. CalEEMod is a program that calculates air emissions from land use sources and incorporates the CARB's EMFAC2007 model for on-road vehicle emissions and the OFFROAD2007 model for off-road vehicle emissions. The model also incorporates factors specific to the

project region, such as VOC content in architectural coating and vehicle fleet mixes. The model can analyze emissions that occur during different phases of construction, such as building construction and architectural coatings, concurrently or separately. The emissions estimates are based on typical construction phasing schedules and equipment activity levels. Emission calculations and results of the air quality modeling conducted for the proposed projects and related projects are provided in **Appendix 4.2**.

Construction-related emissions can be distinguished as either on site or off site. On-site emissions generated during construction principally consist of exhaust emissions (VOC, NO<sub>x</sub>, CO, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>) from the operation of heavy-duty construction equipment, fugitive dust (PM<sub>10</sub> and PM<sub>2.5</sub>) from disturbed soil, and VOC emissions from asphalt paving and architectural coatings. Off-site emissions during the construction phase normally consist of exhaust emissions and entrained paved road dust (PM<sub>10</sub> and PM<sub>2.5</sub>) from construction worker commute trips, material delivery trips, and haul truck material removal trips to and from the construction site.

Air pollutants associated with operations would be generated primarily by two source categories: stationary and mobile. Stationary sources consist of “point sources,” which have one or more fixed emission sources at a single facility, and “area sources,” which are widely distributed and produce many small emissions. When viewed individually, an area source may have an insignificant impact on air quality; however, if viewed collectively, area sources could have a significant impact on air quality. Examples of area sources include water heaters, painting operations, landscape maintenance equipment, and consumer products, such as cleaning supplies. “Mobile sources” refers to combustion exhaust and evaporative emissions from motor vehicles. The proposed EH&S Expansion project also includes a stationary source, which is a 750 kW emergency diesel generator. The generator would be permitted and operated as an emergency backup only, with no regular operation outside of scheduled maintenance and testing. Scheduled testing was assumed to be 50 hours of operation annually for this analysis.

#### **4.2.4.4 Relevant LRDP Mitigation Measures, Planning Strategies, and Programs and Practices**

The 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR (2011) identify a series of Planning Strategies (PS) and Programs and Practices (PP) that are relevant to air quality and include mitigation measures (MM) to reduce impacts of buildout of the 2005 LRDP as amended. These measures are considered part of the proposed projects and related projects for purposes of this analysis. The full list of PSs, PPs, and LRDP MMs is included in **Appendix 1.0** of this EIR and those relevant to air quality for the proposed projects and related projects are provided in each impact discussion below.

#### 4.2.4.5 Project Impacts and Mitigation Measures

**Impact 4.2-1 Construction of the EH&S Expansion and Parking Lot 27 (proposed projects) and related projects would not result in construction emissions that violate an air quality standard or contribute substantially to an existing or projected air quality violation. The impact would be less than significant.**

The proposed projects, which include relevant 2005 LRDP PSs and PPs, would construct a single-story EH&S Expansion building of approximately 27,265 gross square feet (gsf), including about 18,674 assignable square feet (asf). Uses would include about 6,823 asf of administrative/office space; 2,158 asf for a safety learning center; 1,358 asf of laboratories; and 8,335 asf of materials handling and storage space for chemical, radiation, biomedical, and universal waste and building support services. Outside yard areas with an area of about 6,400 square feet would house specialized storage containers and provide secure materials handling access as well as Parking Lot 27, an approximately 50-space parking lot.

The related projects, which also include relevant 2005 LRDP Planning Strategies and Programs and Practices, would consist of the reorganization of the Corporation Yard, which would include demolition of two existing buildings (6,800 square feet of space) and the construction of a 5,400-square-foot warehouse, and relocation of existing campus services into the vacated existing EH&S buildings. The demolition of the existing buildings and construction of a replacement warehouse is included in air quality impact analyses. The existing EH&S buildings reuse is assumed to have no impact on air quality.

The following LRDP PPs are relevant to construction emissions and would be incorporated into both the proposed projects and the related projects:

- PP 4.3-2(a) Construction contract specifications shall include the following:
- (i) Compliance with all SCAQMD rules and regulations.
  - (ii) Maintenance programs to assure vehicles remain in good operating condition.
  - (iii) Avoid unnecessary idling of construction vehicles and equipment.
  - (iv) Use of alternative fuel construction vehicles.
  - (v) Provision of electrical power to the site, to eliminate the need for on-site generators.

PP 4.3-2(b)

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:

- (i) Apply water and/or approved non-toxic chemical soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas that have been inactive for 10 or more days).
- (ii) Replace ground cover in disturbed areas as quickly as possible.
- (iii) Enclose, cover, water twice daily, or apply approved chemical soil binders to exposed piles with 5 percent or greater silt content.
- (iv) Water active grading sites at least twice daily.
- (v) Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour over a 30-minute period.
- (vi) All trucks hauling dirt, sand, soil, or other loose materials shall be covered or maintain at least 2 feet of freeboard (i.e., minimum vertical distance between top of the load and the top of the trailer), in accordance with Section 23114 of the California Vehicle Code.
- (vii) Sweep streets at the end of the day if visible soil material is carried over to adjacent roads.
- (viii) Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip.
- (ix) Apply water three times daily or chemical soil stabilizers according to manufacturers' specifications to all unpaved parking or staging areas or unpaved road surfaces.
- (x) Post and enforce traffic speed limits of 15 miles per hour or less on all unpaved roads.

PP 4.3-2(c) The campus shall continue to implement SCAQMD Rule 1403 – Asbestos when demolishing existing buildings on the campus.

### ***Proposed Projects***

Construction of the proposed projects was assumed to last approximately 18 months, from late 2012 to mid-2014. Construction activities would involve the use of heavy-duty equipment, such as graders, dozer, loaders, water trucks, cranes, forklifts, and paving equipment. The majority of the equipment is conservatively assumed to operate continuously for up to 8 hours per day. The number and types of construction equipment, vendor trips (e.g., transport of building materials), and worker trips were based on values provided in the CalEEMod model. In addition, grading amounts were based on factors provided in the CalEEMod model. In order to account for dust suppression in the CalEEMod model, it was assumed that the contractor(s) for the proposed projects would comply with SCAQMD Rule 403 (Fugitive Dust) by applying water a minimum of three times daily for dust suppression. The emission reduction percentage associated with Rule 403 dust suppression was based on data from the SCAQMD.

Based on the schedule described above and CalEEMod default assumptions, the CalEEMod model was used to estimate annual construction emissions of criteria pollutants from 2012 to 2014, which are shown in **Table 4.2-6, Estimated Unmitigated Construction Emissions**. Unmitigated construction emissions would be below the SCAQMD significance thresholds for all criteria pollutants. Therefore, the proposed projects' construction emissions would result in a less than significant impact on air quality.

**Table 4.2-6  
Estimated Unmitigated Construction Emissions**

Construction Year	Emissions in Pounds per Day <sup>1</sup>					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM10	PM2.5
2012	9.71	74.58	45.45	0.07	6.62	5.39
2013	4.74	26.29	18.19	0.03	3.25	2.30
2014	39.08	23.01	17.67	0.03	1.82	1.52
Maximum Emissions in Any Year	39.08	74.58	45.45	0.07	6.62	5.39
<b>SCAQMD Threshold:</b>	75	100	550	150	150	55
<b>Exceeds Threshold?</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>

Source: Impact Sciences, Inc., (2011). Emissions calculations are provided in **Appendix 4.2**.

Totals in the table may not appear to add exactly due to rounding in the computer model calculations.

<sup>1</sup> PM10 and PM2.5 fugitive dust emissions incorporate watering as a control measure.



*Related Projects*

Demolition of the existing warehouse is included in construction emissions reported above for the proposed projects. Construction of the proposed new approximately 5,400-gsf warehouse is not included in the estimate above, as the timeframe for construction or the specific building type of the replacement warehouse is not known. However, for reasons presented below, it is reasonable to assume that the construction of the 5,400-gsf warehouse would not result in emissions that would exceed the threshold.

- Demolition and grading are typically the largest sources of emissions during construction. Emissions from demolition of the warehouse have been included in the analysis of the proposed project. Grading required for construction of the warehouse would likely be minimal and therefore not a large source of emissions.
- The warehouse would be approximately 5,400 square feet in size, and would be a relatively simple structure to construct. It would be expected to result in a fraction of the emissions resulting from construction of the main EH&S Expansion building, which are well below significance thresholds even without mitigation.
- A small warehouse would not be expected to require significant architectural coating and would therefore not result in sufficient VOC emissions to exceed the significance threshold for VOC emissions either on its own or in combination with the proposed projects.

The related projects would have a less than significant construction-phase impact on air quality.

**Mitigation Measures:** No mitigation is required.

**Impact 4.2-2                      Operation of the EH&S Expansion and Parking Lot 27 (proposed projects) and related projects would not result in operational emissions that would violate an air quality standard or contribute substantially to an existing or projected air quality violation. The impact would be less than significant.**

*Proposed Projects*

The proposed projects, which include relevant 2005 LRDP PSs, PPs, and MMs, would result in the development of a new EH&S Expansion building that would allow UCR to relocate the existing EH&S functions from their present location in the southeast area of the East Campus. The EH&S Expansion is intended to provide a long-term, consolidated campus facility for all EH&S functions in a building designed using principles of environmental sustainability. Operational emissions would be generated by mobile sources, area sources, and stationary sources as a result of normal day-to-day activity at the proposed projects. Mobile source emissions would be generated by motor vehicles traveling to and from the project site. Area source emissions would be generated by the consumption of natural gas for space

and water heating devices, the operation of landscape maintenance equipment, the use of consumer products, and the application of architectural coatings. The stationary source proposed as part of the proposed EH&S Expansion project is a 750 kW emergency generator.

CalEEMod was used to quantify mobile source and area source emissions. Mobile source emissions are primarily a function of trip generation rates and distances traveled. For the purposes of the CalEEMod model, the land use types used to model operational (mobile) source emissions were distributed among office building, research and development (for the laboratory space), warehouse, and parking. CalEEMod trip generation rates were used to estimate mobile emissions for the proposed projects, though it is likely that the trip generation rates will be much less than the default values given the small population of employees (30 employees, most of who would relocate from other areas of the campus and would not result in additional new trips). The Parking Lot 27 project would not generate new vehicle trips but would merely redistribute existing trips. The CalEEMod default travel distances were used in the analysis.

Area source emissions were modeled similarly, with the same land use types and amounts modeled. At a minimum, future campus facilities developed under the 2005 LRDP as amended would comply with the energy efficiency requirements of the Title 24 (2008) Building Standards Code. In actuality, the proposed EH&S Expansion project would be more efficient since the UC Policy on Sustainable Practices requires all non-acute care facilities to achieve at least a 20 percent reduction from Title 24 (2008) Building Standards Code. Therefore, a 20 percent reduction to area source emissions was applied in CalEEMod.

Stationary source emissions would be generated from point (stationary) sources located on the project site. The proposed project includes one stationary source, an emergency generator rated at 750 kilowatts (kW). The generator was assumed to operate a maximum of 1 hour per week for testing (maximum of 50 hours per year). Stationary source emissions were calculated based on operating data provided by the campus and emission factors from the *U.S. EPA's AP-42 Compilation of Air Pollutant Emission Factors*.

**Table 4.2-7, Estimated Unmitigated Operational Emissions** shows the estimated operational emissions.

**Table 4.2-7  
Estimated Unmitigated Operational Emissions**

Emissions Source	Emissions in Pounds Per Day					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM10	PM2.5
<b>Summer Emissions</b>						
<b>Proposed Projects</b>						
Mobile Sources	0.99	2.39	10.37	0.02	1.97	0.17
Area Sources	1.31	0.03	0.03	0.00	0.00	0.00
Stationary Source	1.86	23.39	5.04	0.01	1.66	1.66
Summer Emissions Total	4.16	25.81	15.44	0.03	3.63	1.84
<b>SCAQMD Threshold</b>	55	55	550	150	150	55
<b>Exceeds Threshold?</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>
<b>Winter Emissions</b>						
<b>Proposed Projects</b>						
Mobile Sources	0.98	2.51	9.71	0.02	1.97	0.17
Area Sources	1.31	0.03	0.03	0.00	0.00	0.00
Stationary Source	1.86	23.39	5.04	0.01	1.66	1.66
Winter Emissions Total	4.15	25.93	14.78	0.03	3.63	1.84
<b>SCAQMD Threshold</b>	55	55	550	150	150	55
<b>Exceeds Threshold?</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>

Source: Impact Sciences, Inc. Emissions calculations are provided in **Appendix 4.2**.

Totals in table may not appear to add exactly due to rounding in the computer model calculations.

As shown in **Table 4.2-7**, operation of the proposed projects would not result in emissions that would exceed the SCAQMD significance thresholds for any pollutants. The impact would be less than significant.

### ***Related Projects***

The relocation of existing campus services into the vacated existing EH&S facility would not generate new operational emissions. The warehouse proposed as part of the Corporation Yard reorganization would replace an existing warehouse of similar size and function. Operational emissions associated with the new warehouse are expected to be less than those from the existing warehouse due to improvements in building materials, fixtures, and design. Consequently, the net emissions would likely be less than zero and the related projects would have a less than significant operational impact.

**Mitigation Measures:** No mitigation is required.

**Impact 4.2-3**                    **Implementation of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not expose sensitive receptors to substantial concentrations of carbon monoxide. The impact would be less than significant.**

### *Proposed Projects*

Motor vehicles are a primary source of pollutants in the project vicinity. Traffic congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed State and/or federal standards are termed CO “hotspots.” Such hotspots are defined as locations where the ambient CO concentrations exceed the State or federal ambient air quality standards. Emissions of CO are produced in greatest quantities from vehicle combustion and CO is usually concentrated at or near ground level because it does not readily disperse into the atmosphere. As a result, potential air quality impacts to sensitive receptors are assessed through an analysis of localized CO concentrations. Areas of vehicle congestion have the potential to create CO hotspots that exceed the State ambient air quality 1-hour standard of 20 ppm or the 8-hour standard of 9.0 ppm. The federal levels are less stringent than the State standards and are based on 1- and 8-hour standards of 35 and 9 ppm, respectively. Thus, an exceedance condition would occur based on the State standards prior to exceedance of the federal standard.

The population associated with the proposed projects is small, estimated at 30 persons. The majority of these employees would be relocated from the existing EH&S facility and the total new population is estimated at eight employees. The eight new employees would result in a small number of additional daily and peak hour vehicle trips. The proposed projects would also result in additional truck trips to the expanded facility for deliveries and waste pick-ups. However, the waste off-haul trips would be very infrequent, approximately 2 to 3 times a month, and would not add to peak hour traffic. As the analysis in **Section 4.8, Transportation and Traffic**, shows, the small number of increased vehicle trips associated with the EH&S employees would not result in a decline in the level of service (LOS) at any of the affected intersections, and even at the one intersection that operates at level of service LOS E, the project would not add sufficient traffic to result in a significant increase in delay.<sup>3</sup> Therefore, the traffic added by the proposed projects would not result in a CO hotspot. The impact would be less than significant.

### *Related Projects*

The relocation of existing campus services (Printing and Reprographics and Mail Services) from the Corporation Yard and an off-campus location to the existing EH&S facility would not cause an overall

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<sup>3</sup> See **Section 4.8, Transportation and Traffic**, for a detailed discussion of intersection LOS.

increase in vehicle trips, but could result in congestion at nearby intersections due to modified traffic patterns and thereby result in CO hotspots. However, the traffic study performed for the LRDP Amendment 2 (2011) found that all intersections near the existing EH&S facility would operate at LOS C or better under all scenarios. An intersection operating at LOS of D or better is not expected to result in CO hotspots. The warehouse proposed as part of the Corporation Yard reorganization would replace an existing warehouse of similar size and function, and would not result in any new traffic. The related projects would have a less than significant impact related to CO hotspots.

**Mitigation Measures:** No mitigation is required.

**Impact 4.2-4**                    **Development of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not expose sensitive receptors to substantial concentrations of pollutants that exceed the localized significance thresholds. The impact would be less than significant.**

#### *Proposed Projects*

The SCAQMD recommends the evaluation of localized air quality impacts to sensitive receptors in the immediate vicinity of the project site as a result of construction and operational activities. The thresholds are based on standards established by the SCAQMD in the LST methodology. The thresholds for NO<sub>2</sub> and CO represent the allowable increase in concentrations above background levels in the vicinity of the project that would not cause or contribute to an exceedance of the relevant ambient air quality standards. The thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> are based on emission levels specified in SCAQMD rules so as to aid in progress toward attainment of the ambient air quality standards.

For project sites of 5 acres or less, the SCAQMD includes screening tables that can be used to determine the maximum allowable daily emissions that would satisfy the thresholds without project-specific dispersion modeling. The thresholds do not apply to emissions occurring off the project site, such as emissions from motor vehicles (SCAQMD 2008a). The project's on-site emissions for construction and operation are shown in **Table 4.2-8, Localized Significance Thresholds Analysis** and compared to the LST screening criteria. As shown, construction and operation of the proposed projects would generate on-site emissions that are less than the LST screening criteria.

**Table 4.2-8  
Localized Significance Thresholds Analysis**

Significance Threshold	Pollutant (pounds per day) <sup>1</sup>			
	NO <sub>x</sub>	CO	PM10	PM2.5
<b>Construction</b>				
Maximum Daily On-site Emissions	74.58	45.45	6.62	5.39
LST Screening Criteria	200	1,262	20	6
<b>Exceeds Threshold?</b>	NO	NO	NO	NO
<b>Operational</b>				
Maximum Daily On-site Emissions	25.93	15.44	3.63	1.84
LST Screening Criteria	200	1,262	5	2
<b>Exceeds Threshold?</b>	NO	NO	NO	NO

*Source: South Coast Air Quality Management District, Final Localized Significance Threshold Methodology, (2008), Appendix C.*

<sup>1</sup> *The NO<sub>x</sub> thresholds contained in the SCAQMD lookup tables are based on emissions of NO<sub>x</sub> and assume gradual conversion to NO<sub>2</sub> based on the distance from the project site boundary.*

It should be noted that the U.S. EPA promulgated a new 1-hour NAAQS for nitrogen dioxide (NO<sub>2</sub>). The new 1-hour standard, which is 100 parts per billion (ppb) (188 micrograms per cubic meter [ $\mu\text{g}/\text{m}^3$ ]), went into effect on April 12, 2010.

The LST analysis should be based on the most stringent ambient air quality standards in effect. Prior to the new U.S. EPA standard, the 1-hour CAAQS for NO<sub>2</sub> was the most stringent standard at 180 ppb. The SCAQMD screening tables for NO<sub>2</sub> are based on the 1-hour CAAQS. The SCAQMD has not revised the LST screening tables to correspond to the new U.S. EPA 1-hour NO<sub>2</sub> standard. However, as shown in **Table 4.2-10**, the NO<sub>x</sub> emissions from the proposed projects are much less than the NO<sub>x</sub> screening criteria. Given that the project's NO<sub>x</sub> emissions are less than half of the screening criteria, the projects would not cause or contribute to an exceedance of the new U.S. EPA 1-hour NO<sub>2</sub> standard at nearby sensitive receptors.

In summary, the proposed projects would not produce air pollutant emissions that would result in a significant localized impact.

### ***Related Projects***

As noted, the demolition of the existing warehouse was included in construction emissions estimates for the proposed project and construction emissions are assumed to be minimal. Given the small size of the warehouse, construction emissions would not exceed localized emissions thresholds.

The warehouse proposed as part of the Corporation Yard reorganization would replace an existing warehouse of similar size and function. Operational emissions associated with the new warehouse are expected to be less than those from the existing warehouse due to improvements in building materials, fixtures, and design. Consequently, the net emissions will likely be less than zero. Therefore, the operational emissions from the related projects would also not exceed localized significance thresholds.

**Mitigation Measures:** No mitigation is required.

**Impact 4.2-5                      Development of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not expose sensitive receptors to substantial concentrations of toxic air contaminants. The impact would be less than significant.**

### *Proposed Projects*

Toxic air contaminants (TACs) consist primarily of reactive organic gases, such as benzene and formaldehyde, polycyclic aromatic hydrocarbons, such as benzo(a)pyrene-10 and dibenz(a,h)anthracene-10, and metals, such as arsenic and lead. Diesel particulate matter (DPM) from diesel-fueled engines has also been determined by CARB to be a TAC as defined under Section 39655 of the Health and Safety Code.

The current EH&S facility tests and handles hazardous waste and other materials that may be considered TACs. The proposed EH&S Expansion project would increase the capacity of the EH&S facility in order to accommodate hazardous waste generated on the campus in the future. However, the day-to-day operation of the expanded EH&S facility would not result in substantial emissions of TACs. As is current practice, testing of hazardous materials would be conducted in the new facility using very small volumes, generally in the range of 1-10 milliliters but with a maximum of 70 milliliters, with no potential for significant concentrations of TACs. Similar to current practice, hazardous materials would also “bulked” at the facility, which involves pumping materials from the small containers received from other campus facilities into larger storage containers. The smaller containers are typically 1- to 5-gallon sealed containers such as bottles or covered buckets. Storage containers may be as large as 55-gallon drums, also sealed except when being filled. Pumping and testing of materials would be conducted under fume hoods at all times, with proper controls in place to minimize the release of potentially hazardous materials to the environment. Bulking typically takes place once a week, for approximately 4 hours in total.

The emergency diesel generator on site would be a source of DPM. However, the generator would be subject to a permit to operate from the SCAQMD and would not operate unless in the case of a power outage or for testing. Under the conditions of the SCAQMD permit, testing would be limited to a specific

number of hours per year, with the limit set so as to maintain emissions at a rate determined to result in minimal health risks. The expected total annual emissions of DPM under these permit conditions would be less than 3 pounds.

Given the small volumes of TACs handled at the facility and existing controls reducing the release of any hazardous materials, the testing and handling operations at the proposed project would not result in substantial concentrations of TACs that could result in human health effects. The impact would therefore be less than significant. With respect to the possibility of accidental release of hazardous substances that could include or produce TACs, that potential impact is discussed in **Section 4.4 Hazards and Hazardous Materials** of this EIR.

The Parking Lot 27 project would not involve emissions of TACs (other than those present in gasoline), and no impacts would occur.

#### *Related Projects*

No sources of TACs are associated with the Corporation Yard reorganization project. Reuse of the existing EH&S buildings by campus services would involve handling of small amounts of hazardous materials which are the same materials that are used by the printing services at its current location. The impact from the use of these materials would be less than significant.

**Mitigation Measures:** No mitigation is required.

**Impact 4.2-6                      Development of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not create objectionable odors that could affect a substantial number of people. The impact would be less than significant.**

#### *Proposed Projects*

The SCAQMD considers wastewater treatment plants, wastewater pumping facilities, sanitary landfills, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical manufacturing, fiberglass manufacturing, painting/coating operations, rendering plant, coffee roaster, food processing facilities, feed lots and dairies, green waste and recycling operations, and metal smelting plants as odor emitting facilities. The campus does not contain any of these facilities and no such facility would be added to the campus as part of the proposed projects.

Construction of the proposed projects would require the use of diesel-fueled equipment, architectural coatings, and asphalt paving, all of which have an associated odor. However, these odors are not



pervasive enough to cause objectionable odors affecting a substantial number of people. Consequently, construction of the proposed projects would not cause odors.

The proposed projects would not involve materials that would result in substantial odors. To the extent that some of the hazardous materials that are handled or stored in the proposed EH&S facility are odorous, the odors are not expected to be emitted outside the building. In addition, the projects would not be located near any of the potentially significant sources of odors identified above. Therefore, the proposed projects would not cause odor effects nor expose receptors to odors. The impact would be less than significant.

#### *Related Projects*

No sources of odors are associated with the related projects. The impact would be less than significant.

**Mitigation Measure:** No mitigation measure is required.

**Impact 4.2-7                      Implementation of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not conflict with or obstruct implementation of the applicable air quality plan. The impact would be less than significant.**

#### *Proposed Projects*

In compliance with the *State CEQA Guidelines*, this EIR evaluates whether the proposed projects would conflict with or otherwise obstruct implementation of regional air quality plans. For air quality planning purposes, the SCAQMD creates emissions inventories based on existing and foreseeable future land uses within its jurisdiction. If a new project is consistent with the planned land use designation that was considered in the development of an AQMP, the proposed project would not conflict with and would not obstruct implementation of the applicable air quality management plan. Generally, a project's conformance with a local general plan that was taken into account in the preparation of an air quality management plan would demonstrate that the project would not conflict with or obstruct implementation of the air quality management plan.

The SCAQMD most recently completed an AQMP in 2007. The proposed projects would result in the relocation of services and personnel existing when the AQMP was completed with the addition of an insignificant (within the context of the AQMP) number of new personnel. Emissions resulting from the proposed projects would be less than significant for all pollutants, including ozone and particulate matter. Therefore, the proposed projects would not conflict with the region's air quality plan for

addressing the region's nonattainment status for ozone and particulate matter. The impact would be less than significant.

#### *Related Projects*

As with the proposed projects, due to their small scale, the related projects would also not result in significant emissions of air pollutants both during construction and operations, and therefore would not conflict with the AQMP. The impact would be less than significant.

**Mitigation Measures:** No mitigation measure is required.

#### **4.2.4.6 Cumulative Impacts and Mitigation Measures**

**Impact 4.2-8                      Development of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not result in a cumulatively considerable net increase of a criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard. The impact would be less than significant.**

According to the SCAQMD *CEQA Air Quality Handbook*, projects that are within the emission thresholds identified above should be considered to result in a less than significant impact on a cumulative basis unless there is other pertinent information to the contrary. As shown in **Table 4.2-6** and **Table 4.2-7**, the estimated construction and operational emissions would not exceed the SCAQMD thresholds of significance. Therefore, the proposed projects would not result in a cumulatively considerable net increase in emissions of ozone precursors and particulate matter for which the Air Basin is in nonattainment. Emissions from the related projects would also be minimal, and not sufficient to result in exceedances of significance thresholds if combined with emissions totals from the proposed project. The project's impact would be less than significant on a cumulative basis.

**Mitigation Measures:** No mitigation measure is required.

## 4.3 GREENHOUSE GAS EMISSIONS

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### 4.3.1 INTRODUCTION

This section discusses the existing global, national, and statewide conditions related to greenhouse gases (GHG) and global climate change and evaluates the potential impacts on global climate from the construction and operation of the UCR EH&S Expansion, Parking Lot 27 (proposed projects), and related Corporation Yard reorganization and existing EH&S buildings re-use (related projects). The section also provides discussion of the applicable federal, State, regional, and local agencies that regulate, monitor, and control GHG emissions. Copies of the calculations made to estimate GHG emissions associated with the proposed project and supporting technical data are presented in **Appendix 4.2** of this EIR.

The following sources were used to prepare this section of the Draft EIR:

- The South Coast Air Quality Management District (SCAQMD) *CEQA Air Quality Handbook and Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*
- The UC Riverside Climate Action Plan

No comments regarding greenhouse gas emissions were received in response to the Notice of Preparation for this EIR.

### 4.3.2 EXISTING CONDITIONS

#### 4.3.2.1 Background

Global climate change refers to any significant change in climate measurements, such as temperature, precipitation, or wind, lasting for an extended period (i.e., decades or longer) (U.S. EPA 2008a). Climate change may result from:

- natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun;
- natural processes within the climate system (e.g., changes in ocean circulation, reduction in sunlight from the addition of GHG and 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).

The primary effect of global climate change has been a rise in the average global tropospheric temperature of 0.2 degree Celsius (°C) per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling using 2000 emission rates shows that

further warming is likely to occur, which would induce further changes in the global climate system during the current century (IPCC 2007). Changes to the global climate system and ecosystems, and to California, could include:

- declining sea ice and mountain snowpack levels, thereby increasing sea levels and 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 (IPCC 2007);
- rising average global sea levels primarily due to thermal expansion and the melting of glaciers, ice caps, and the Greenland and Antarctic ice sheets (model-based projections of global average sea level rise at the end of the 21<sup>st</sup> century (2090–2099) range from 0.18 meter to 0.59 meter or 0.59 foot to 1.94 feet) (IPCC 2007);
- changing weather patterns, including changes to 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 (IPCC 2007);
- declining Sierra snowpack levels, which account for approximately half of the surface water storage in California, by 70 percent to as much as 90 percent over the next 100 years (Cal EPA 2006);
- increasing the number of days conducive to ozone formation by 25 to 85 percent (depending on the future temperature scenario) in high ozone areas located in the Southern California area and the San Joaquin Valley by the end of the 21<sup>st</sup> century (Cal EPA 2006);
- increasing the potential for erosion of California's coastlines and sea water intrusion into the Sacramento and San Joaquin Delta and associated levee systems due to the rise in sea level (California EPA 2006);
- increasing pest infestation, making California more susceptible to forest fires (Cal EPA 2006);
- increasing the demand for electricity by 1 to 3 percent by 2020 due to rising temperatures resulting in hundreds of millions of dollars in extra expenditures (Cal EPA 2006); and
- summer warming projections in the first 30 years of the 21<sup>st</sup> century ranging from about 0.5 to 2 °C (0.9 to 3.6 °F) and by the last 30 years of the 21<sup>st</sup> century, from about 1.5 to 5.8 °C (2.7 to 10.5 °F) (Cal EPA 2006).

The natural process through which heat is retained in the troposphere<sup>1</sup> is called the "greenhouse effect." The greenhouse effect traps heat in the troposphere through a threefold process as follows: (1) short-wave radiation in the form of visible light emitted by the Sun is absorbed by the Earth as heat; (2) long-wave radiation re-emitted by the Earth; and (3) GHGs in the upper atmosphere absorbing or trapping the long-wave radiation and re-emitting it back towards the Earth and into space. This third process is the focus of current climate change actions.

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<sup>1</sup> The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth's surface from 6 to 7 miles).

While water vapor and carbon dioxide (CO<sub>2</sub>) are the most abundant GHGs, other trace GHGs have a greater ability to absorb and re-radiate long-wave radiation. To gauge the potency of GHGs, scientists have established a Global Warming Potential (GWP) for each GHG based on its ability to absorb and re-emit long-wave radiation over a specific period. The GWP of a gas is determined using CO<sub>2</sub> as the reference gas, which has a GWP of 1 over 100 years (IPCC 1996).<sup>2</sup> For example, a gas with a GWP of 10 is 10 times more potent than CO<sub>2</sub> over 100 years. The use of GWP allows GHG emissions to be reported using CO<sub>2</sub> as a baseline. The sum of each GHG multiplied by its associated GWP is referred to as “carbon dioxide equivalents” (CO<sub>2</sub>e). This essentially means that 1 metric ton of a GHG with a GWP of 10 has the same climate change impacts as 10 metric tons of CO<sub>2</sub>.

#### 4.3.2.2 Greenhouse Gases

State law defines GHGs to include the following compounds:

- **Carbon Dioxide (CO<sub>2</sub>).** Carbon dioxide primarily is generated by fossil fuel combustion from stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources over the past 250 years, the concentration of carbon dioxide in the atmosphere has increased 35 percent (U.S. EPA 2008b). Carbon dioxide is the most widely emitted GHG and is the reference gas (GWP of 1) for determining the GWP of other GHGs. In 2004, 82.8 percent of California’s GHG emissions were carbon dioxide (California Energy Commission 2007).
- **Methane (CH<sub>4</sub>).** Methane is emitted from biogenic sources (i.e., resulting from the activity of living organisms), incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. In the United States, the top three sources of methane are landfills, natural gas systems, and enteric fermentation (U.S. EPA n.d.[a]). Methane is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The GWP of methane is 21.
- **Nitrous Oxide (N<sub>2</sub>O).** Nitrous oxide is produced by natural and human-related sources. Primary human-related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The GWP of nitrous oxide is 310.
- **Hydrofluorocarbons (HFCs).** HFCs typically are used as refrigerants in both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam-blowing is growing particularly as the continued phase-out of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) gains momentum. The GWP of HFCs ranges from 140 for HFC-152a to 6,300 for HFC-236fa.
- **Perfluorocarbons (PFCs).** Perfluorocarbons are compounds consisting of carbon and fluorine. They are primarily created as a byproduct of aluminum production and semiconductor manufacturing. Perfluorocarbons are potent GHGs with a GWP several thousand times that of carbon dioxide, depending on the specific PFC. Another area of concern regarding PFCs is their long atmospheric

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<sup>2</sup> All Global Warming Potentials are given as 100-year values.

lifetime (up to 50,000 years) (Energy Information Administration 2007). The GWPs of PFCs range from 5,700 to 11,900.

- **Sulfur Hexafluoride (SF<sub>6</sub>).** Sulfur hexafluoride is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes electricity. Sulfur hexafluoride is the most potent GHG that has been evaluated by the Intergovernmental Panel on Climate Change with a GWP of 23,900. However, its global warming contribution is not as high as the GWP would indicate due to its low mixing ratio, as compared to carbon dioxide (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm] of CO<sub>2</sub>) (U.S. EPA n.d.[b]).

### 4.3.2.3 Contributions to Greenhouse Gas Emissions

#### *Global*

Worldwide anthropogenic (man-made) GHG emissions are tracked for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Man-made GHG emissions for Annex I nations are available through 2007. Man-made GHG emissions for Non-Annex I nations are available through 2005. The sum of these emissions totaled approximately 42,133 million metric tons of CO<sub>2</sub> equivalents (MMTCO<sub>2</sub>E).<sup>3</sup> It should be noted that global emissions inventory data are not all from the same year and may vary depending on the source of the emissions inventory data.<sup>4</sup> The top five countries and the European Union accounted for approximately 55 percent of the total global GHG emissions according to the most recently available data (See **Table 4.3-1, Top Five GHG Producer Countries and the European Union [Annual]**). The GHG emissions in more recent years may differ from the inventories presented in **Table 4.3-1**; however, the data is representative of currently available global inventory data.

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<sup>3</sup> The CO<sub>2</sub> equivalent emissions commonly are expressed as “million metric tons of carbon dioxide equivalent (MMTCO<sub>2</sub>E).” The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP, such that MMTCO<sub>2</sub>E = (million metric tons of a GHG) × (GWP of the GHG). For example, the GWP for methane is 21. This means that the emission of one million metric tons of methane is equivalent to the emission of 21 million metric tons of CO<sub>2</sub>.

<sup>4</sup> The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2005 data, the UNFCCC data for the most recent year were used (UNFCCC n.d.[a] and n.d.[b]).

**Table 4.3-1  
Top Five GHG Producer Countries and the European Union (Annual)**

<b>Emitting Countries</b>	<b>GHG Emissions (MMTCo<sub>2e</sub>)</b>
China	7,250
United States	7,217
European Union (EU), 27 Member States	5,402
Russian Federation	2,202
India	1,863
Japan	1,412
<b>Total</b>	<b>25,346</b>

Source: World Resources Institute, "Climate Analysis Indicators Tool (CAIT)," <http://cait.wri.org/>. 2010.  
Excludes emissions and removals from land use, land-use change and forestry (LULUCF).  
Note: Emissions for Annex I nations are based on 2007 data. Emissions for Non-Annex I nations (e.g., China, India) are based on 2005 data).

### **United States**

As noted in **Table 4.3-1**, the United States was the number two producer of global GHG emissions. The primary GHG emitted by human activities in the United States was CO<sub>2</sub>, representing approximately 84 percent of total GHG emissions (U.S. EPA 2008a). Carbon dioxide from fossil fuel combustion, the largest source of GHG emissions, accounted for approximately 80 percent of U.S. GHG emissions (UNFCCC n.d.[a] and n.d.[b]).

### **State of California**

CARB compiles GHG inventories for the State of California. Based on the 2008 GHG inventory data (i.e., the latest year for which data are available), California emitted 474 MMTCo<sub>2e</sub> *including* emissions resulting from imported electrical power in 2008 (CARB 2010a). Based on the CARB inventory data and GHG inventories compiled by the World Resources Institute, California's total statewide GHG emissions rank second in the United States (Texas is number one) with emissions of 417 MMTCo<sub>2e</sub> *excluding* emissions related to imported power (CARB 2010a).

The primary contributors to GHG emissions in California are transportation, electric power production from both in-state and out-of-state sources, industry, agriculture and forestry, and other sources, which include commercial and residential activities. **Table 4.3-2, GHG Emissions in California**, provides a summary of GHG emissions reported in California in 1990 and 2008 separated by categories defined by the United Nations Intergovernmental Panel on Climate Change (IPCC).

**Table 4.3-2  
GHG Emissions in California**

Source Category	1990 (MMTCO <sub>2</sub> e)	Percent of Total	2008 (MMTCO <sub>2</sub> e)	Percent of Total
<b>ENERGY</b>	<b>386.41</b>	<b>89.2%</b>	<b>413.80</b>	<b>86.6%</b>
Energy Industries	157.33	36.3%	171.23	35.8%
Manufacturing Industries & Construction	24.24	5.6%	16.67	3.5%
Transport	150.02	34.6%	173.94	36.4%
Other (Residential/Commercial/Institutional)	48.19	11.1%	46.59	9.8%
Non-Specified	1.38	0.3%	0.00	0.0%
Fugitive Emissions from Oil & Natural Gas	2.94	0.7%	3.28	0.7%
Fugitive Emissions from Other Energy Production	2.31	0.5%	2.09	0.4%
<b>INDUSTRIAL PROCESSES &amp; PRODUCT USE</b>	<b>18.34</b>	<b>4.2%</b>	<b>30.11</b>	<b>6.3%</b>
Mineral Industry	4.85	1.1%	5.35	1.1%
Chemical Industry	2.34	0.5%	0.06	0.0%
Non-Energy Products from Fuels & Solvent Use	2.29	0.5%	1.97	0.4%
Electronics Industry	0.59	0.1%	0.80	0.2%
Substitutes for Ozone Depleting Substances	0.04	0.0%	13.89	2.9%
Other Product Manufacture and Use	3.18	0.7%	1.66	0.3%
Other	5.05	1.2%	6.39	1.3%
<b>AGRICULTURE, FORESTRY, &amp; OTHER LAND USE</b>	<b>19.11</b>	<b>4.4%</b>	<b>24.42</b>	<b>5.1%</b>
Livestock	11.67	2.7%	16.28	3.4%
Land	0.19	0.0%	0.19	0.0%
Aggregate Sources & Non-CO <sub>2</sub> Sources on Land	7.26	1.7%	7.95	1.7%
<b>WASTE</b>	<b>9.42</b>	<b>2.2%</b>	<b>9.41</b>	<b>2.0%</b>
Solid Waste Disposal	6.26	1.4%	6.71	1.4%
Wastewater Treatment & Discharge	3.17	0.7%	2.70	0.6%

**EMISSIONS SUMMARY**

Gross California Emissions	433.29	477.74
Sinks from Forests and Rangelands	-6.69	-3.98
Net California Emissions	426.60	473.76

*Sources:*

- <sup>1</sup> California Air Resources Board, "California Greenhouse Gas 1990-2004 Inventory by IPCC Category - Summary," <http://www.arb.ca.gov/cc/inventory/archive/archive.htm>. 2010.
- <sup>2</sup> California Air Resources Board, "California Greenhouse Gas 2000-2008 Inventory by IPCC Category - Summary," <http://www.arb.ca.gov/cc/inventory/data/data.htm>. 2010.



Between 1990 and 2008, the population of California grew by approximately 7.3 million (from 29.8 to 37.9 million) (U.S. Census Bureau 2009; California Department of Finance 2010). This represents an increase of approximately 27.2 percent from 1990 population levels. In addition, the California economy, measured as gross state product, grew from \$788 billion in 1990 to \$1.8 trillion in 2008, representing an increase of approximately 128 percent (over twice the 1990 gross state product) (California Department of Finance 2009). Despite the population and economic growth, California's net GHG emissions only grew by approximately 11 percent. The California Energy Commission (CEC) attributes the slow rate of growth to the success of California's renewable energy programs and its commitment to clean air and clean energy (CEC 2006a).

#### *Global Ambient CO<sub>2</sub> Concentrations*

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 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 (CEC 2006a). Global methane and nitrous oxide concentrations show similar increases for the same period (see **Table 4.3-3, Comparison of Global Pre-Industrial and Current GHG Concentrations**).

**Table 4.3-3  
Comparison of Global Pre-Industrial and Current GHG Concentrations**

Greenhouse Gas	Early Industrial Period Concentrations (ppm)	Natural Range for Last 650,000 Years (ppm)	2005 Concentrations (ppm)
Carbon Dioxide (CO <sub>2</sub> )	280	180 to 300	379
Methane (CH <sub>4</sub> )	715	320 to 790	1774
Nitrous Oxide (N <sub>2</sub> O)	270	NA	319

*Source: Intergovernmental Panel on Climate Change, Climate Change 2007: The Physical Science Basis, Summary for Policymakers, (2007).*

### 4.3.3 REGULATORY FRAMEWORK

#### 4.3.3.1 Intergovernmental Panel on Climate Change

The World Meteorological Organization (WMO) and United Nations Environmental Program (UNEP) established the IPCC in 1988. The goal of the IPCC is to evaluate the risk of climate change caused by human activities. Rather than performing research or monitoring climate, the IPCC relies on peer-reviewed and published scientific literature to make its assessment. While not a regulatory body, the IPCC assesses information (i.e., scientific literature) regarding human-induced climate change and the impacts of human-induced climate change, and recommends options to policy makers for the adaptation and mitigation of climate change. The IPCC reports its evaluations in special reports called “assessment reports.” The latest assessment report (i.e., Fourth Assessment Report, consisting of three working group reports and a synthesis report based on the first three reports) was published in 2007.<sup>5</sup> In its 2007 report, the IPCC stated that global temperature increases since the mid-20<sup>th</sup> century were “very likely” attributable to man-made activities (greater than 90 percent certainty) (IPCC 2007).

#### 4.3.3.2 Federal

In *Massachusetts vs. EPA*, the Supreme Court held that United States Environmental Protection Agency (U.S. EPA) has the statutory authority under Section 202 of the Clean Air Act (CAA) to regulate GHGs from new motor vehicles. The court did not hold that the U.S. EPA was required to regulate GHG emissions; however, it indicated that the agency must decide whether GHGs from motor vehicles cause or contribute to air pollution that is reasonably anticipated to endanger public health or welfare. Upon the final decision, the President signed Executive Order 13432 on May 14, 2007, directing the U.S. EPA, along with the Departments of Transportation, Energy, and Agriculture, to initiate a regulatory process that responds to the Supreme Court’s decision.

In December 2007, the President signed the Energy Independence and Security Act of 2007, which sets a mandatory Renewable Fuel Standard (RFS) requiring fuel producers to use at least 36 billion gallons of biofuel in 2022 and sets a national fuel economy standard of 35 miles per gallon by 2020. The act also contains provisions for energy efficiency in lighting and appliances and for the implementation of green building technologies in federal buildings. On July 11, 2008, the U.S. EPA issued an Advanced Notice of Proposed Rulemaking (ANPRM) on regulating GHGs under the CAA. The ANPRM reviews the various CAA provisions that may be applicable to the regulation of GHGs and presents potential regulatory approaches and technologies for reducing GHG emissions. On April 10, 2009, the U.S. EPA published the Proposed Mandatory Greenhouse Gas Reporting Rule in the *Federal Register* (U.S. EPA 2009). The rule

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<sup>5</sup> The IPCC’s Fourth Assessment Report is available online at <http://www.ipcc.ch/>.

was adopted on September 22, 2009 and covers approximately 10,000 facilities nationwide, accounting for 85 percent of U.S. GHG emissions.

On September 15, 2009, the U.S. EPA and the Department of Transportation's (DOT) National Highway Traffic Safety Administration (NHTSA) issued a joint proposal to establish a national program consisting of new standards for model year 2012 through 2016 light-duty vehicles that will reduce GHG emissions and improve fuel economy. The proposed standards would be phased in and would require passenger cars and light-duty trucks to comply with a declining emissions standard. In 2012, passenger cars and light-duty trucks would have to meet an average standard of 295 grams of CO<sub>2</sub> per mile and 30.1 miles per gallon. By 2016, the vehicles would have to meet an average standard of 250 grams of CO<sub>2</sub> per mile and 35.5 miles per gallon.<sup>6</sup> These standards were formally adopted by the U.S. EPA and DOT on April 1, 2010.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

While these findings do not impose additional requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. EPA's proposed GHG emissions standards for light-duty vehicles, which were jointly proposed by the U.S. EPA and DOT. On April 1, 2010, the U.S. EPA and NHTSA issued final rules requiring that by the 2016 model-year, manufacturers must achieve a combined average vehicle emission level of 250 grams of CO<sub>2</sub> per mile, which is equivalent to 35.5 miles per gallon as measured by U.S. EPA standards. These agencies are currently in the process of developing similar regulations for the 2017-2025 model years.

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<sup>6</sup> The CO<sub>2</sub> emission standards and fuel economy standards stated are based on U.S. EPA formulas.

### 4.3.3.3 State

#### *Title 24 Building Standards Code*

The California Energy Commission first adopted Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) in 1978 in response to a legislative mandate to reduce energy consumption in the State. Although not originally intended to reduce GHG emissions, increased energy efficiency and reduced consumption of electricity, natural gas, and other fuels would result in fewer GHG emissions from residential and nonresidential buildings subject to the standard. The standards are updated periodically to allow for the consideration and inclusion of new energy efficiency technologies and methods. The latest revisions were adopted in 2008 and became effective on January 1, 2010.

Part 11 of the Title 24 Building Standards Code is referred to as the California Green Building Standards Code (CALGreen Code). The purpose of the CALGreen Code is to “improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) Planning and design; (2) Energy efficiency; (3) Water efficiency and conservation; (4) Material conservation and resource efficiency; and (5) Environmental air quality” (California Building Standards Commission 2009). The CALGreen Code is not intended to substitute or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California Building Standards Commission (CBSC). The CBSC has released a *2010 Draft California Green Building Standards Code* on its website (California Building Standards Commission 2010). The update to Part 11 of the Title 24 Building Standards Code became effective on January 1, 2011. Unless otherwise noted in the regulation, all newly constructed buildings in California are subject of the requirements of the CALGreen Code.

#### *Assembly Bill 1493*

In response to the transportation sector’s contribution of more than half of California’s CO<sub>2</sub> emissions, Assembly Bill 1493 (AB 1493, Pavley) was enacted on July 22, 2002. AB 1493 requires CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles whose primary use is noncommercial personal transportation. CARB adopted the standards in September 2004. The new standards will be phased in during the 2009–2016 model years. When fully phased in, the near term (2009–2012) standards will result in a reduction of about 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the midterm (2013–2016) standards will result in a reduction of about 30 percent.

*Executive Order S-3-05 and the Climate Action Team*

In June 2005, Governor Schwarzenegger established California's GHG emissions reduction targets in Executive Order S-3-05. The Executive Order established the following goals: GHG emissions should be reduced to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050. The Secretary of Cal/EPA is required to coordinate efforts of various agencies in order to collectively and efficiently reduce GHGs.

Representatives from various agencies comprise the Climate Action Team. The Cal/EPA secretary is required to submit a biannual progress report from the Climate Action Team to the governor and State legislature disclosing the progress made toward GHG emission reduction targets. In addition, another biannual report must be submitted illustrating the impacts of global warming on California's water supply, public health, agriculture, coastline, and forests, and reporting possible mitigation and adaptation plans to combat these impacts. Some strategies currently being implemented by State agencies include CARB introducing vehicle climate change standards and diesel anti-idling measures, the Energy Commission implementing building and appliance efficiency standards, and the Cal/EPA implementing their green building initiative.

*Assembly Bill 32*

In furtherance of the goals established in Executive Order S-3-05, the legislature enacted Assembly Bill 32 (AB 32, Nuñez and Pavley), the California Global Warming Solutions Act of 2006, which Governor Schwarzenegger signed on September 27, 2006. AB 32 represents the first enforceable statewide program to limit GHG emissions from all major industries with penalties for noncompliance. AB 32 requires the State to undertake several actions – the major requirements are discussed below:

**CARB Early Action Measures**

CARB is responsible for carrying out and developing the programs and requirements necessary to achieve the goal of AB 32—the reduction of California's GHG emissions to 1990 levels by 2020. The first action under AB 32 resulted in CARB's adoption of a report listing three specific early-action greenhouse gas emission reduction measures on June 21, 2007. On October 25, 2007, CARB approved six additional early-action GHG reduction measures under AB 32. CARB has adopted regulations for all early action measures.

### State of California Greenhouse Gas Inventory and 2020 Limit

As required under AB 32, on December 6, 2007, CARB approved the 1990 greenhouse gas emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 MMTCO<sub>2e</sub>. CARB also projected the State's 2020 GHG emissions under "business as usual" (BAU) conditions—that is, emissions that would occur without any plans, policies, or regulations to reduce GHG emissions. CARB used an average of the State's GHG emissions from 2002 through 2004 and projected the 2020 levels based on population and economic forecasts. The projected net emissions totaled approximately 596 MMTCO<sub>2e</sub>. Therefore, the State must reduce its 2020 BAU emissions by approximately 29 percent in order to meet the 1990 target.

The inventory revealed that in 1990, transportation, with 35 percent of the State's total emissions, was the largest single sector, followed by industrial emissions, 24 percent; imported electricity, 14 percent; in-state electricity generation, 11 percent; residential use, 7 percent; agriculture, 5 percent; and commercial uses, 3 percent (these figures represent the 1990 values, compared to **Table 4.3-2**, which presents 2006 values). AB 32 does not require individual sectors to meet their individual 1990 GHG emissions inventory; the total statewide emissions are required to meet the 1990 threshold by 2020.

### AB 32 Climate Change Scoping Plan

As indicated above, AB 32 requires CARB to adopt a scoping plan indicating how reductions in significant GHG sources will be achieved through regulations, market mechanisms, and other actions. After receiving public input on their discussion draft of the *Climate Change Proposed Scoping Plan* released in June 2008, CARB released the *Climate Change Proposed Scoping Plan* in October 2008 that contains an outline of the proposed state strategies to achieve the 2020 greenhouse gas emission limits. The CARB Governing Board approved the *Climate Change Scoping Plan* on December 11, 2008. Key elements of the Scoping Plan include the following recommendations:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewable energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and

- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

Under the Scoping Plan, approximately 85 percent of the State's emissions are subject to a cap-and-trade program where covered sectors are placed under a declining emissions cap. The emissions cap incorporates a margin of safety whereby the 2020 emissions limit will still be achieved even in the event that uncapped sectors do not fully meet their anticipated emission reductions. Emissions reductions will be achieved through regulatory requirements and the option to reduce emissions further or purchase allowances to cover compliance obligations. It is expected that emission reduction from this cap-and-trade program will account for a large portion of the reductions required by AB 32.

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

On January 18, 2007, California further solidified its dedication to reducing GHGs by setting a new Low Carbon Fuel Standard (LCFS) for transportation fuels sold within the State. Executive Order S-1-07 sets a declining standard for GHG emissions measured in CO<sub>2</sub>-equivalent gram per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020. The LCFS will apply to refiners, blenders, producers, and importers of transportation fuels and will use market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle" using the most economically feasible methods. The executive order requires the Secretary of Cal/EPA to coordinate with the CEC, CARB, the University of California, and other agencies to develop a protocol to measure the "life-cycle carbon intensity" of transportation fuels. CARB released a draft version of the LCFS in October 2008 and adopted the final regulation on April 23, 2009.

***Senate Bill 97 (State CEQA Guidelines)***

In August 2007, the legislature enacted SB 97 (Dutton), which directed the Governor's Office of Planning and Research (OPR) to develop guidelines under CEQA for the mitigation of greenhouse gas emissions. A number of actions have taken place under SB 97, which are discussed below.

**OPR Climate Change Technical Advisory**

On June 19, 2008, OPR issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents (OPR 2008). The advisory indicated that a project's GHG emissions, including those associated with vehicular traffic and construction activities, should be identified and estimated. The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures that are necessary to reduce GHG emissions to a less than significant

level. The advisory did not recommend a specific threshold of significance. Instead, OPR requested that CARB recommend a method for setting thresholds that lead agencies may adopt (OPR 2009).

### **CEQA Guideline Amendments**

In its work to formulate CEQA Guideline Amendments for GHG emissions, OPR submitted the *Proposed Draft CEQA Guideline Amendments for Greenhouse Gas Emissions* to the Secretary for Natural Resources on April 13, 2009. The Natural Resources Agency conducted formal rulemaking procedures in 2009 and adopted the CEQA Guideline Amendments on December 30, 2009. They became effective in March 2010.

### ***Senate Bill 375***

The California Legislature passed Senate Bill 375 (SB 375) on September 1, 2008, and SB 375 was signed by Governor Schwarzenegger and chaptered into law on September 30, 2008. SB 375 requires CARB, working in consultation with the metropolitan planning organizations (MPOs), to set regional greenhouse gas reduction targets for the automobile and light truck sector for 2020 and 2035. CARB must provide each MPO with its reduction target by September 30, 2010. The target must then be incorporated within that region's Regional Transportation Plan (RTP), which is used for long-term transportation planning, in a Sustainable Communities Strategy (SCS). Certain transportation planning and programming activities would then need to be consistent with the SCS; however, SB 375 expressly provides that the SCS does not regulate the use of land, and further provides that local land use plans and policies (e.g., general plan) are not required to be consistent with either the RTP or SCS.

### ***CAPCOA CEQA and Climate Change White Paper***

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



### *CARB Proposal for Significance Thresholds for GHGs under CEQA*

On October 24, 2008, CARB staff released a draft and preliminary proposal for determining whether the emissions related to proposed new projects are significant impacts under CEQA. While the proposal is focused on helping lead agencies determine under which conditions a project may be found exempt from the preparation of an EIR, the proposal also provides a guide for establishing significance thresholds for projects for which EIRs would be prepared regardless of the project's climate change impact. According to this proposal, the threshold for determining whether a project's emissions are significant is not zero emissions, but must be a stringent performance-based threshold to meet the requirements of AB 32. If the project meets certain specific yet to be developed performance standards for several categories of emissions, including construction emissions, building energy use, water use, solid waste, and transportation, and the project emits no more than a certain to be determined amount of metric tons of carbon equivalents per year, the project's impact would not be significant. According to CARB, California Energy Commission Tier II building energy use standards are proposed to be used, which generally require a reduction in energy usage of 30 percent beyond Title 24 building code requirements. CARB has also proposed a 7,000 metric ton carbon dioxide equivalent (MTCO<sub>2</sub>e) threshold for industrial projects, but has not yet proposed thresholds for residential and commercial projects. The annual threshold does not explicitly include emissions associated with construction- and transportation-related activities. The draft proposal was very controversial and CARB Staff no longer has any plans to move forward with any final threshold. A key preliminary conclusion from the draft threshold, however, was that CARB staff, in setting a numerical threshold for industrial projects and suggesting performance standards, does not believe in a 'zero threshold' mandated by CEQA.

#### **4.3.3.4 Regional Programs**

In April 2008, the SCAQMD, in order to provide guidance to local lead agencies on determining the significance of GHG emissions identified in CEQA documents, convened a "GHG CEQA Significance Threshold Working Group."<sup>7</sup> The goal of the working group is to develop and reach consensus on an acceptable CEQA significance threshold for GHG emissions that would be used on an interim basis until CARB (or some other State agency) develops statewide guidance on assessing the significance of GHG emissions under CEQA.

Initially, SCAQMD staff presented the working group with a significance threshold that could be applied to various types of projects – residential, non-residential, industrial, etc. However, the threshold is still under development. In December 2008, staff presented the SCAQMD Governing Board with a

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<sup>7</sup> For more information see: <http://www.aqmd.gov/ceqa/handbook/GHG/GHG.html>.

significance threshold for stationary source projects where it is the lead agency. This threshold uses a tiered approach to determine a project's significance, with 10,000 metric tons of carbon dioxide equivalent (MTCO<sub>2e</sub>) as a screening numerical threshold.

At present time, the SCAQMD has not adopted thresholds for projects such as the one analyzed in this EIR. The SCAQMD is considering a tiered approach to determine the significance of residential and commercial projects. The most recent draft approach that was published in September 2010 is as follows (SCAQMD 2010):

- Tier 1: Is the project exempt from further analysis under existing statutory or categorical exemptions? If yes, there is a presumption of less than significant impacts with respect to climate change.
- Tier 2: Is the project's GHG emissions within the GHG budgets in an approved regional plan? (The plan must be consistent with CEQA Guidelines Sections 15064(h)(3), 15125(d), or 15152(s).) If yes, there is a presumption of less than significant impacts with respect to climate change.
- Tier 3: Is the project's incremental increase in GHG emissions below or mitigated to less than the significance screening level (10,000 MTCO<sub>2e</sub> per year for industrial projects; 3,500 MTCO<sub>2e</sub> for residential projects; 1,400 MTCO<sub>2e</sub> for commercial projects; 3,000 MTCO<sub>2e</sub> for mixed-use or all land use projects)? If yes, there is a presumption of less than significant impacts with respect to climate change.
- Tier 4: Does the project meet one of the following performance standards? If yes, there is a presumption of less than significant impacts with respect to climate change.
  - Option #1: Achieve some percentage reduction in GHG emissions from a base case scenario, including land use sector reductions from AB 32 (e.g., 29 percent reduction as recommended by the San Joaquin Valley Air Pollution Control District).
  - Option #2: For individual projects, achieve a project-level efficiency target of 4.8 MTCO<sub>2e</sub> per service population by 2020 or a target of 3.0 MTCO<sub>2e</sub> per service population by 2035. For plans, achieve a plan-level efficiency target of 6.6 MTCO<sub>2e</sub> per service population by 2020 or a target of 4.1 MTCO<sub>2e</sub> per service population by 2035.
- Tier 5: Projects should obtain GHG emission offsets to reduce significant impacts. Offsets in combination with any mitigation measures should achieve the target thresholds for any of the above Tiers. Otherwise, project impacts would remain significant.

The SCAQMD has not announced when staff is expecting to present a finalized version of these thresholds to the Governing Board. The SCAQMD has also adopted Rules 2700, 2701, and 2702 that establishes a GHG reduction program within the SCAQMD; however, GHG emission reduction protocols pursuant to these rules have only been established for boilers and process heaters, forestry, and manure management reduction projects.

#### 4.3.3.5 Applicable Local Plans and Policies

##### *University of California Policy on Sustainable Practices*

The University of California Policy on Sustainable Practices was issued by the UC President in 2004 and revised in January 2006, March 2007, and September 2009. The policy was developed to standardize campus practices and is a system-wide commitment to minimize the University of California's impact on the environment and reduce the University's dependence on non-renewable energy sources. The University of California Policy on Sustainable Practices promotes the principles of energy efficiency and sustainability in the following areas:

- Green Building Design
- Clean Energy Standard
- Climate Protection Practices
- Sustainable Transportation Practices
- Sustainable Operations
- Recycling and Waste Management
- Environmentally Preferable Purchasing Practices
- Food

The policy guidelines that address these topics recommend that University operations:

- Incorporate the principles of energy efficiency and sustainability in all capital projects, operations, and maintenance within budgetary constraints and programmatic requirements.
- Minimize the use of non-renewable energy sources on behalf of UC's built environment by creating a portfolio approach to energy use, including 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' LRDPs.
  - Track, report, and minimize GHG emissions on behalf of UC operations.
  - Minimize the amount of University-generated waste sent to landfill.
  - Utilize the University's purchasing power to meet its sustainability objectives.

The University of California has signed the American College and University Presidents Climate Commitment (ACUPCC). Each signatory commits to completing an inventory of GHG emissions within one year, and to developing, within two years, an institutional plan to achieve climate neutrality as soon as possible. The commitment also includes specific interim actions, including requiring that new campus construction will be built to at least the U.S. Green Building Council's LEED Silver standard or equivalent; purchasing Energy Star appliances; offsetting greenhouse gas emissions generated by institutional air travel; encouraging and providing access to public transportation; purchasing or producing at least 15 percent of the institution's electricity consumption from renewable sources; supporting climate and sustainability shareholder proposals at companies where the institution's endowment is invested; and adopting measures to reduce waste.

#### *UC Riverside Climate Action Plan*

As discussed earlier in this section, the UC Policy on Sustainable Practices – Climate Protection section targets three goals: reduction of GHG emissions back to 2000 levels by 2014, to 1990 levels by 2020, and ultimately climate neutrality. Climate neutrality is defined in the policy as the University having a net zero impact on the Earth's climate, which is to be achieved by minimizing GHG emissions as much as possible, and using carbon offsets or other measures to mitigate the remaining GHG emissions.

UC Riverside has prepared a Climate Action Plan (CAP), which covers the current operations and projected growth in operations of the campus through 2020.<sup>8</sup> The CAP describes and addresses policy and regulatory requirements of (1) the UC Policy on Sustainable Practices, (2) AB 32, (3) ACUPCC, (4) CEQA, and (4) U.S. EPA reporting requirements. Consistent with the UC Policy on Sustainable Practices, the UCR CAP establishes the goal for the campus to reduce GHG emissions to 1990 levels by 2020. In addition, UCR is proposing to reduce its GHG emissions to 2000 levels by 2014.

The CAP provides documentation of how campus GHG emissions are calculated, a report of current (2008) emissions, and estimates of past (to 1990) and future emissions (to 2020). The emissions reported in the CAP are separated into three groups:

- Scope 1 emissions which include direct emissions from area and stationary combustion sources and campus-owned vehicles;
- Scope 2 emissions which include indirect emissions related to the production and consumption of electricity;
- Scope 3 emissions which include other indirect emissions from sources such as commuting and water use. Construction emissions may also be included as Scope 3.

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<sup>8</sup> The CAP is available at <http://acupcc.aashe.org/cap/379/>.

The CAP focuses on emissions from Scopes 1 and 2. The Campus does not report Scope 3 emissions in the verified inventories conducted annually, as these emissions are not requested by the greenhouse gas inventory registry that UC campuses use. Therefore, limited emissions data are currently available for calculating Scope 3 sources, though efforts are underway to expand data collection and reporting for Scope 3 sources.

The CAP established the 1990 emissions level for UCR at 50,854 MTCO<sub>2e</sub> for Scopes 1 and 2 emission sources. Scope 3 emissions from commuting and water use were estimated to be 26,471 MTCO<sub>2e</sub> in 1990. The total 1990 emissions are estimated at 77,321 MTCO<sub>2e</sub>, which represents the target for 2020 GHG emissions under the CAP. In addition to establishing the 1990 emission levels, the CAP also established the 2000 emissions level at 78,824 MTCO<sub>2e</sub> for Scopes 1 and 2 emission sources, and 49,587 MTCO<sub>2e</sub> for Scope 3 emissions. The total 2000 emissions are estimated at 128,412 MTCO<sub>2e</sub>, which represents the target for 2014 GHG emissions under the CAP.

The CAP includes a characterization of options and methods to reduce emissions and a blueprint for future action. Emission reduction methods provided in the CAP are listed in **Appendix 4.2**.

#### 4.3.4 IMPACTS AND MITIGATION MEASURES

##### 4.3.4.1 Significance Criteria

The impacts related to GHG emissions resulting from the construction and operation of the proposed projects and related projects would be considered significant if they would exceed the following Standards of Significance, in accordance with Appendix G of the *State CEQA Guidelines*:

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

Under CEQA (*State CEQA Guidelines* Section 15064(b)), “the determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data.” CEQA also grants lead agencies the general authority to adopt criteria for determining whether a given impact is “significant.”

When no guidance exists under CEQA, the lead agency may look to and assess general compliance with comparable regulatory schemes.<sup>9</sup>

As discussed in **Section 4.3.3** above, some air quality management and air pollution control districts have adopted guidance documents for evaluating the significance of GHG emissions. Other districts have published draft guidance documents that have not yet been formally adopted. A summary of the available guidance documents from several air quality management and air pollution control districts is provided below. As listed below, the guidance documents do not provide a set of consistent thresholds for evaluating the significance of the impact of a project's GHG emissions on the global climate.

- CARB published preliminary draft thresholds in 2008, but ceased further development of their threshold as of the date of this writing. The preliminary draft thresholds recommended that the significance of the impact of a project's GHG emissions should be based on compliance with a previously approved plan that addresses GHG emissions or compliance with performance standards relating to construction and operational activities (or equivalent GHG-reduction measures) and emitting no more than a yet to be determined quantity of GHG emissions. Projects that do not meet these thresholds would be considered to have a significance impact.
- The San Joaquin Valley Air Pollution Control District (SJVAPCD) adopted the *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* in late 2009. According to the guidance, the SJVAPCD guidance recommends the use of best performance standards to assess the significance of GHG emissions. The SJVAPCD expects that compliance with the recommended best performance standards would reduce a project's GHG emissions by a target of 29 percent or more, compared to 'business as usual' (BAU) conditions. The 29 percent reduction target is based on the goal of AB 32, which is to reduce the State's GHG emissions to 1990 levels by 2020.
- The Sacramento Metropolitan Air Quality Management District (SMAQMD) has also adopted guidance recommending that projects achieve a 29 percent reduction from BAU conditions.
- The Bay Area Air Quality Management District (BAAQMD) adopted revisions to its CEQA Guidelines in June 2010 that recommend a project-level significance threshold of 1,100 MTCO<sub>2e</sub> for residential and commercial projects or a project-level efficiency target of 4.6 MTCO<sub>2e</sub> per service population (residents plus employees) per year. The recommended plan-level significance thresholds are compliance with a qualified greenhouse gas reduction strategy (or similar criteria included in a General Plan) or a plan-level efficiency target of 6.6 MTCO<sub>2e</sub> per service population (residents plus employees) per year.

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<sup>9</sup> See *Protect Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal. App. 4th 1099, 1107 ["[A] lead agency's use of existing environmental standards in determining the significance of a project's environmental impacts is an effective means of promoting consistency in significance determinations and integrating CEQA environmental review activities with other environmental program planning and resolution."]. Lead agencies can, and often do, use regulatory agencies' performance standards. A project's compliance with these standards usually is presumed to provide an adequate level of protection for environmental resources. See, e.g., *Cadiz Land Co. v. Rail Cycle* (2000) 83 Cal.App.4th 74, 106-09 (upholding use of regulatory agency performance standard).

- The SCAQMD is currently developing thresholds for GHG emissions. As noted previously, the SCAQMD recommends a tiered approach. The Tier 3 threshold requires that a project's incremental increase in GHG emissions should be below or mitigated to less than the significance screening level (10,000 MTCO<sub>2e</sub> per year for industrial projects; 3,500 MTCO<sub>2e</sub> for residential projects; 1,400 MTCO<sub>2e</sub> for commercial projects; 3,000 MTCO<sub>2e</sub> for mixed-use or all land use projects). The Tier 4 threshold requires that projects demonstrate consistency with one of two performance standards. The first standard is that projects achieve a percent reduction target from a base case scenario, including land use sector reductions from AB 32. The SCAQMD does not recommend a specific percent reduction but refers to the San Joaquin Valley Air Pollution Control District's approach, which uses a 29 percent reduction from "business as usual" conditions. The second standard is that projects achieve a project-level efficiency target of 4.8 MTCO<sub>2e</sub> per service population per year in 2020 and 3.0 MTCO<sub>2e</sub> per service population per year in 2035. The plan-level efficiency targets are 6.6 MTCO<sub>2e</sub> per service population per year in 2020 and 4.1 MTCO<sub>2e</sub> per service population per year in 2035.

While a wide array of thresholds and standards have been presented, the amendments to the *State CEQA Guidelines* reaffirm that the lead agency has the discretion to determine how to evaluate the significance of a project's impact under CEQA. The *State CEQA Guidelines* includes a new Section 15064.4, which states that, when making a determination of the significance of the impact of GHG emissions, a lead agency shall have discretion to determine whether to use a model or methodology to quantify GHG emissions and/or rely on a qualitative analysis or performance-based standards.

Based on the above discussion, the project's GHG emissions from construction and operational activities are evaluated below relative to the Appendix G thresholds of the *State CEQA Guidelines* (Environmental Checklist Form). To address the first CEQA checklist question, the SCAQMD's draft threshold of 1,400 MTCO<sub>2e</sub> for commercial developments is used in this study. Although the proposed project is not a commercial development, nor is it a project type for which a threshold has been put forth by SCAQMD, as this threshold is the most stringent of the draft thresholds proposed by the SCAQMD for use in the Air Basin, it was used to evaluate the projects' impact. With respect to the second CEQA checklist question (the project's consistency with an applicable plan), the UCR CAP is the plan applicable to the projects. The projects' consistency with that plan is evaluated below.

#### **4.3.4.2 CEQA Checklist Items Adequately Addressed in the Initial Study**

The Initial Study deferred analysis of the greenhouse gas emissions impacts of the proposed project and related projects to the EIR. Therefore, all of the CEQA checklist items are addressed in the following analysis.

#### **4.3.4.3 Methodology**

OPR in its Technical Advisory has recommended that GHG emissions from project-related traffic, energy consumption, water use, and construction activities, should be identified and estimated, to the extent that

data are available to calculate such emissions. In addition, CARB staff has considered extensively the value of indirect emissions in a mandatory reporting program. CARB believes that indirect energy usage provides a more complete picture of the emissions footprint of a facility. According to CARB, “As facilities consider changes that would affect their emissions – addition of a cogeneration unit to boost overall efficiency even as it increases direct emissions, for example – the relative impact on total (direct plus indirect) emissions by the facility should be monitored. Annually reported indirect energy usage also aids the conservation awareness of the facility ...”. For these reasons, CARB has proposed requiring the calculation of direct and indirect GHG emissions as part of the AB 32 reporting requirements, and this analysis does so (CARB 2007).

CAPCOA has stated that the information needed to characterize GHG emissions from manufacture, transport, and end-of-life of construction materials (often referred to as lifecycle emissions) would be speculative at the CEQA analysis level (CAPCOA 2008). Since accurate and reliable data do not exist for estimating lifecycle emissions for the proposed projects, the analysis does not assess such lifecycle GHG emissions.

The California Emissions Estimator Model (CalEEMod) (ENVIRON 2011) was used to estimate the proposed projects’ emissions during construction and operation. CalEEMod is a program that calculates air emissions from land use sources and incorporates the California Air Resources Board’s (CARB) EMFAC2007 model for on-road vehicle emissions and the OFFROAD2007 model for off-road vehicle emissions. CalEEMod also utilizes data from the CEC, IPCC, CARB, U.S. EPA and CAPCOA (CAPCOA 2010). The model can analyze emissions that occur during different phases of project construction, such as building construction and architectural coating, concurrently or separately.

Site-specific or project-specific data were used in the CalEEMod model where available. The Campus provided an estimated construction schedule of 18 months, starting late 2012 and finishing in mid-2014. The number and type of construction equipment, vendor trips (e.g., transport of building materials) and worker trips were based on default values provided in the CalEEMod model.

Additional sources consulted for this analysis include data and guidance from the U.S. EPA, the U.S. Energy Information Administration, CARB, the California Energy Commission, the California Climate Action Registry’s *General Reporting Protocol*, and other GHG and global climate change data as referenced. Emission calculations conducted for the proposed project are contained in **Appendix 4.2**.



#### 4.3.4.4 Relevant LRDP Mitigation Measures, Planning Strategies, and Programs and Practices

The 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR identify a series of Planning Strategies (PS) and Programs and Practices (PP) and include Mitigation Measures (MM) to reduce the environmental impacts of campus buildout under 2005 LRDP as amended. Although none of the PPs or PSs is specifically focused on GHG emissions, some of the measures that address air pollutant emissions would also help reduce the campus's GHG emissions. These measures are considered part of the proposed projects and related projects for purposes of this analysis. 2005 LRDP Amendment 2 Mitigation Measure **MM 4.16-1** is applicable to the proposed projects and related projects:

MM 4.16-1: All projects developed under the amended 2005 LRDP shall be evaluated for consistency with the GHG reduction policies of the UCR CAP and the UC Policy on Sustainable Practices, as may be updated from time to time by the University. GHG reduction measures, including, but not limited to, those found within the UCR CAP and UC Policy identified in Tables 4.16-9 and 4.16-10 [of the 2005 LRDP Amendment 2 EIR] shall be incorporated in all campus projects so that at a minimum an 8 percent reduction in emissions from BAU is achieved. It is expected that the GHG reduction measures in the UCR CAP will be refined from time to time, especially in light of the evolving regulations and as more information becomes available regarding the effectiveness of specific GHG reduction measures. As part of the implementation of the UCR CAP, the Campus will also monitor its progress in reducing GHG emissions to ensure it will attain the established targets.

This EIR includes an evaluation of the proposed projects' and related projects' consistency with the CAP and the UC Policy on Sustainable Practices and therefore includes this MM as part of the projects. The full list of PSs, PPs, and LRDP MMs is included in **Appendix 1.0** of this EIR.

#### 4.3.4.5 Project Impacts and Mitigation Measures

**Impact 4.3-1 Construction and operation of the EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would generate GHG emissions both directly and indirectly. However, the emissions would not result in a significant impact on the environment.**

##### *Proposed Projects*

The proposed projects, which include relevant 2005 LRDP Planning Strategies and Programs and Practices, consist of the construction and operation of a new EH&S Expansion building on the UCR campus and a 50-space parking lot adjacent to the new building. The new EH&S Expansion building

would contain approximately 27,265 gross square feet, including administrative and office space, laboratories, a learning center, and materials handling and storage space. Related projects include the reorganization of the Corporation Yard and the reuse of the existing EH&S building by existing services currently located off campus or elsewhere on campus. The GHG emissions associated with the proposed projects and the related projects are presented below.

Construction and operation of the proposed projects would result in the generation of GHG emissions, both directly and indirectly. These emissions are discussed separately below.

### Construction Emissions

During construction, GHGs emissions would result from the exhaust of construction equipment and construction workers' vehicles. The manufacture of construction materials used by the projects would also indirectly contribute to climate change (upstream emission source). Upstream emissions are emissions that are generated during the manufacture of products used for construction (e.g., cement, steel, and transport of materials to the region). The upstream GHG emissions for these projects, which may also include perfluorocarbons and sulfur hexafluoride, are not estimated in this impact analysis because they are not within the control of the University and the lack of data precludes their quantification without speculation.

The primary GHG emissions during construction are CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O. These emissions are the result of fuel combustion by construction equipment and motor vehicles. The other GHGs defined by State law (hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) are typically associated with specific industrial sources and processes and would not be emitted during construction of the proposed projects. The CalEEMod model was used to estimate the construction-related CO<sub>2</sub> emissions using the same assumptions described in **Section 4.2, Air Quality**, for the construction portion of the air quality analysis.

As noted above, 2005 LRDP PPs, PSs and MMs are a part of the proposed projects. Specifically, PP 4.3-2(a), which requires construction contracts to specify, among other things, that the contractor will comply with all SCAQMD rules and regulations, avoid idling of vehicles, and use alternative fuels in construction vehicles, would help reduce the GHG emissions generated during construction. However, the reductions due to these measures cannot be easily quantified and are not applied to the estimates presented below, which are therefore conservative. Similarly, in its *Climate Change Scoping Plan* for AB 32, CARB has adopted measures that will reduce construction-related GHG emissions. For instance, SPM-5, low carbon fuel standard, when in effect is expected to result in a 7.2 percent reduction in transportation GHG emissions; SPM-7, vehicle efficiency measures for passenger vehicles, is expected to reduce transportation GHG emissions by 2.8 percent; and SPM-10, vehicle hybridization and energy efficiency standards

adopted for medium- and heavy-duty vehicles, is expected to result in a 2.9 percent reduction in transportation GHG emissions. Since the implementation schedule for these measures has not yet been determined, emission reductions achieved from implementation of these measures were not applied and so emissions estimates should be seen as conservative. The estimated construction-related GHG emissions are provided in **Table 4.3-4, Estimated Construction GHG Emissions**. The SCAQMD has not put forth a threshold of significance for the evaluation of a project's construction emissions. The Air District recommends that the construction emissions be amortized over the project's lifetime and added to the project's operational annual emissions so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies. The SCAQMD's Draft GHG CEQA Guidance recommends using 30 years as a project lifetime (SCAQMD 2008). Therefore, the construction GHG emissions have been amortized over a 30-year period and included in the amortized operational emissions discussed in the next section.

**Table 4.3-4  
Estimated Construction GHG Emissions**

<b>Year</b>	<b>Proposed Project Emissions (Metric Tons CO<sub>2</sub>e/year)</b>
2012	30.85
2013	350.84
2014	94.01
<b>Total GHG Emissions</b>	<b>475.70</b>
<b>Amortized GHG Emissions<sup>1</sup></b>	<b>15.86</b>

*Source: Impact Sciences, Inc., (2011). Emissions calculations are provided in Appendix 4.2.*

*Note: Totals in table may not appear to add exactly due to rounding.*

<sup>1</sup> *Amortized GHG emissions are calculated by dividing the total construction GHG emissions over a recommended project lifetime of 30 years.*

### Operational Emissions

The proposed projects would be operational in mid-2014. Once operational, the proposed projects would result in GHG emissions, primarily CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O, as a result of fuel combustion in building heating systems and motor vehicles. Building and motor vehicle air conditioning systems may use HFCs (and HCFCs and CFCs to the extent that they have not been completely phased out at later dates); however, these emissions are not quantified since they would only occur through accidental leaks. It is not possible to estimate the frequency of accidental leaks without some level of speculation. It should be noted that CARB has drafted a proposed "Regulation for Management of High Global Warming Potential Refrigerants" that would reduce emissions of these refrigerants from stationary refrigeration and

air-conditioning systems by requiring persons subject to the rule to reclaim, recover, or recycle refrigerant and to properly repair or replace faulty refrigeration and air conditioning equipment (CARB 2009).

#### *Direct Emissions*

Direct emissions of CO<sub>2</sub> emitted from operation of the proposed projects include area source emissions (from natural gas consumption) and mobile source emissions. Area source emissions were calculated using CalEEMod using default assumptions for an office building, research and development facilities, parking lots, and warehouse land use types. Mobile source emissions were calculated using CalEEMod, based on the Institute of Transportation and Engineering 8<sup>th</sup> Edition trip generation rates (ITE 2008).

#### *Indirect Emissions*

The proposed projects would also result in indirect GHG emissions due to the electricity demand. The emission factor for CO<sub>2</sub> due to electrical demand from the City of Riverside Public Utilities Department, the electrical utility serving the proposed projects, was selected in the CalEEMod model. Emission factors for CO<sub>2</sub> are based on CARB's Local Government Operations Protocol (CARB 2010). Emission factors for CH<sub>4</sub> and N<sub>2</sub>O are based on E-Grid values (U.S. EPA n.d.[a]). The cited factors in the CARB report are based on data collected by the California Climate Action Registry. The emission factors take into account the current mix of energy sources used to generate electricity and the relative carbon intensities of these sources, and include natural gas, coal, nuclear, large hydroelectric, and other renewable sources of energy. Electricity consumption was based on default data found in CalEEMod.

In addition to electrical demand, the proposed projects would also result in indirect GHG emissions due to water consumption, wastewater treatment, and solid waste generation. GHG emissions from water consumption are due to the electricity needed to pump, treat, and distribute water. The annual electrical demand factors for potable water were obtained from the CEC (CEC 2006). The default CalEEMod assumptions were used for GHG emissions from water consumption, wastewater production, and solid waste generation.

GHG emissions from the existing EH&S facility were not used to discount the new GHG emissions that would result from the proposed projects because the existing EH&S buildings would be occupied by other campus services once the new EH&S Expansion is operational. All GHG emissions from building operations at the new EH&S Expansion building were therefore considered new emissions. However, for mobile sources, only emissions related to the new staff were considered. Emissions from additional staff vehicle trips would be the only new emissions from mobile sources resulting from the proposed projects.

### Summary of Operational Emissions

A summary of the operational emissions of the proposed projects is provided below in **Table 4.3-5, EH&S Expansion Operational GHG Emissions**. Detailed emission calculations are provided in **Appendix 4.2**. The estimates represent emissions under “business as usual” conditions – that is, GHG emissions that would occur as a result of development of the proposed projects without the reductions from programs developed by the State to comply with AB 32, 2005 LRDP PPs and PSs (specifically PP 4.3-1), and the UCR CAP.

**Table 4.3-5  
EH&S Expansion Operational GHG Emissions**

Scope	Source	GHG Emissions (Metric Tons CO <sub>2</sub> e/year)
Scope 1	Natural Gas Consumption	6.90
Scope 2	Purchased Electricity	142.04
Scope 3	Mobile Combustion (Commuters)	208.46
	Water	410.83
	Waste	48.60
	Amortized Construction	15.86
<b>Total GHG Emissions</b>		<b>813.83</b>

Source: Impact Sciences, Inc. (2011). Emission calculations are provided in **Appendix 4.2**.

Note: Totals in table may not appear to add exactly due to rounding.

As noted earlier, the SCAQMD has developed draft significance thresholds for GHG sources within its jurisdiction. Commercial projects that result in GHG emissions that exceed 1,400 MTCO<sub>2</sub>e per year would be considered significant under these draft thresholds. As shown in **Table 4.3-5**, the estimated emissions from the proposed projects would not exceed this threshold. Therefore, the proposed projects’ impact would be considered less than significant.

### Related Projects

The reuse of the existing EH&S facility would not involve any new construction and therefore would not generate any construction-phase GHG emissions. The reorganization of the Corporation Yard would involve the demolition of about 6,800 square feet of warehouse space and the construction of about 5,400 square feet of replacement warehouse space. Demolition of the existing warehouse was included in construction emissions estimates for the proposed projects, but construction emissions were not included. Given the small size of the replacement warehouse (5,400 square feet), its construction would be expected

to result in a fraction of the GHG emissions resulting from construction of the main 27,235-square-foot EH&S Expansion building.

Both related projects would not add net new building space or employees to the campus. Therefore, they would not result in additional operational emissions compared to existing conditions.

The impact of related projects on global climate would be less than significant.

**Mitigation Measures:** No mitigation is required.

**Impact 4.3-2**                    **The EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. The impact would be less than significant.**

#### *Proposed Projects*

The proposed projects, which include relevant 2005 LRDP Planning Strategies and Programs and Practices, would result in a significant impact related to greenhouse gas emissions if the projects were in conflict with an applicable plan, policy, or regulation concerning greenhouse gas reductions. The UCR CAP, which has been prepared to respond to the University's commitment under the ACUPCC and to the University's Policy on Sustainable Practices, is the relevant plan with which to review compliance.

In December 2010, UCR published a CAP that has been designed to ensure that even as the campus grows, new development adds incrementally fewer GHG emissions (i.e., new buildings are more "green") and the Campus implements measures to reduce emissions from its existing sources. The UCR CAP takes into account the growth in building space and campus population projected through 2020. The proposed projects are within the UCR growth projections and therefore the projects are accounted for in the UCR CAP.

The UCR CAP also includes a series of existing and future emission reduction strategies that the Campus has committed to implement in order to reduce its emissions and meet the CAP targets. The CAP emission reduction strategies are listed in **Tables 4.3-6, GHG Reduction Measures in Current Practice,** and **4.3-7, GHG Reduction Measures for Future Implementation.** The proposed projects were reviewed relative to these strategies. The last column in each table presents a determination of whether the measure applies to the projects or not, and if it does, whether the projects are consistent with the measure. As these tables show, the proposed projects include all applicable GHG reduction measures and would therefore not conflict with the UCR CAP. Therefore, the impact would be less than significant.

*Related Projects*

As stated in **Impact 4.3-1**, the two related projects would not increase the total amount of building space or the total number of campus employees. Therefore, they would not cause an increase in the GHG emissions generated by the campus. As a result, they would not conflict with the UCR CAP. There would be no impact.

**Mitigation Measure:** No mitigation measure is required.

**4.3.4.6 Cumulative Impacts and Mitigation Measures**

As the impact from a project's GHG emissions is essentially a cumulative impact, the analysis presented in the section provides an adequate analysis of the proposed project's cumulative impact related to GHG emissions. No further analysis is required.

**Table 4.3-6  
GHG Reduction Measures in Current Practice**

<b>Reduction Strategy</b>	<b>Implementation</b>	<b>Targeted Emission Source</b>	<b>Project Consistency</b>
Energy-reducing shading mechanisms for windows, porch, patio and walkway overhangs installed either in new buildings or during retrofits.	Included in Campus Design Guidelines; ODC works with architects to incorporate these strategies.	Energy Consumption	Consistent, required by Campus Design Guidelines.
Grid power (as opposed to diesel generators) used for job site power needs where feasible during construction.	This is a current UCR practice.	Energy Consumption	Consistent.
75 or more percent of buildings oriented to face either north or south (within 30 degrees of N/S).	Campus is on a north-south grid. Most buildings respect this orientation or incorporate remedial measures.	Energy Consumption	Consistent.
Light-colored pavement (e.g., increased albedo pavement) included as part of project design guidelines.	Campus Design Guidelines require the use of "UCR Tan" integral color mixture for all concrete surfaces and limit asphalt surfaces to roads only.	Energy Consumption	Consistent, required by Campus Design Guidelines.
All projects required to obtain LEED, Labs21 or other green building certification.	UC policy requires all new projects to achieve LEED Silver, and aim higher where possible.	Energy Consumption	LEED certification will be obtained for the project.
Efficient lighting and lighting control systems installed in new construction and retrofit projects. Daylight used as an integral part of lighting systems in buildings.	All new buildings will continue to adopt this strategy. This strategy is integral to UC's commitment to LEED EBOM.	Energy Consumption	Consistent, required under LEED.
Trees and vegetation planted near structures to shade buildings and reduce energy requirements for heating/cooling.	This is a current UCR practice.	Energy Consumption	Consistent, landscaping is proposed near the building consistent with this strategy.



Reduction Strategy	Implementation	Targeted Emission Source	Project Consistency
Parking lot areas provided with 50% tree cover within 10 years of construction, in particular, low emitting, low maintenance, low water requiring trees. Open lots may be provided with photovoltaic sun shades.	While this strategy is identified in the 2007 Campus Design Guidelines and being followed, the timeframe for establishing 50% tree cover is not established.	Energy Consumption	Not applicable due to the requirement to keep existing trees on site. PV shades may be provided in the future.
All new construction projects required to surpass California Energy Code Title 24 by 20 percent or better.	UC Policy requires outperforming Title 24 by 20%.	Energy Consumption	Consistent.
On-site trees that may be removed due to development replaced or preserved as a means of providing carbon storage.	This is a current UCR practice.	Energy Consumption	Consistent, as existing trees on the project site would be retained.
Developing on-site renewable energy capacity. Photovoltaic shades to be installed for HEV and PHEV Zipcar parking areas.	UCR is in the initial stages of developing on-site solar energy capacity.	Energy Consumption	Not applicable. This is a campus-wide initiative and not a project level GHG reduction strategy.
Water-efficient irrigation systems and devices installed, such as soil moisture-based irrigation controls, to create water-efficient landscapes.	Both landscapes and irrigations systems on campus are water-efficient.	Energy Consumption	Consistent. Project landscaping will be fitted with a water-efficient irrigated system.

Reduction Strategy	Implementation	Targeted Emission Source	Project Consistency
Heat recovery projects implemented in campus buildings.	<p>This is an ongoing practice where feasible. To date UCR has:</p> <p>Installed an economizer on the central plant's largest boiler, resulting in an efficiency gain of roughly 35%.</p> <p>Added heat recovery at the Chemical Sciences building by re-circulating the office exhaust air that was originally once-through air.</p> <p>Installed run-around loop heat recovery at Boyce Hall.</p> <p>Implemented retro-commissioning for the Science Library and Rivera Library.</p>	Energy Consumption	Not applicable because of the nature of the proposed facility.
Promote "least polluting" ways to connect people and goods to their destinations. Provide information on all options for individuals and businesses to reduce transportation-related emissions. Provide education and information about public transportation.	The Sustainability Coordinator (with ODC) is tasked to work with TAPS to further increase awareness and develop educational material to help reduce transportation related emissions.	Motor Vehicles	Consistent. The new employees at the EH&S facility will be provided information on commute options under the campus-wide program. Mitigation Measure 4.4-2 requires the EH&S department to inform all vendors to use designated truck route, which is also the shortest route to the freeway.
Accommodations for car sharing programs include providing parking spaces for the car share vehicles at convenient locations accessible by public transportation.	Zipcars are available on campus. Transportation and Parking Services also administer and incentivize a carpool program.	Motor Vehicles	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.

Reduction Strategy	Implementation	Targeted Emission Source	Project Consistency
Purchasing vehicles and buses that use alternatives fuels or technology, such as electric hybrids and CNG. Where feasible, fleet vehicles are required to be low emission vehicles. Promote the use of these vehicles in the general community.	Campus Fleet Services has acquired alternative fuel (CNG) vehicles, hybrid vehicles and EV/HEV/PHEV vehicles amounting to 26% of the current Fleet Services inventory. This strategy will require further educating the campus constituents and a commitment to alternative fuel vehicles, provided they are economically viable.	Motor Vehicles	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.
Incentives and benefits provided for faculty and staff members who pursue alternative transportation methods.	UCR students, faculty and staff can ride RTA buses at no cost. Registered participants of the Public Transit Program also receive complimentary parking privileges on campus. When classes are in session, operation of two shuttle routes that service nearby student housing and apartment communities reduce vehicle trips to the campus. Discounted vouchers for Metrolink, a regional commuter rail system, are also available to students. An RTA bus route connects the downtown Riverside Metrolink station with campus.	Motor Vehicles	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.
Bicycle lanes and walking paths designed to facilitate traffic to from and at schools, parks and other community destination points.	UCR works collaboratively with the City of Riverside to facilitate bicycle and pedestrian movement and supports necessary improvements on campus.	Motor Vehicles	Not applicable. This is a campus-wide initiative and not a project-level strategy. The proposed project includes a sidewalk that will connect to Linden Street and other on-campus pedestrian facilities.
Increasing the number of secure bicycle corrals.	Secure bike corrals are being placed on campus at strategic locations based on observed need.	Motor Vehicles	Consistent. The proposed project will provide bicycle parking.

Reduction Strategy	Implementation	Targeted Emission Source	Project Consistency
Developing a map for bicycle commuters.	Capital & Physical Planning (CPP) and Transportation and Parking Services (TAPS) are collaborating on a comprehensive map that documents both on and off-campus bike lanes.	Motor Vehicles	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.
Increasing the number of vanpools.	The Vanpool Program is extremely successful and has expanded significantly since its inception. Additional routes are continuously being considered.	Motor Vehicles	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.
Pedestrian/bicycle safety and traffic calming measures in excess of jurisdiction requirements included in project designs. Roadways designed to reduce motor vehicle speeds and encourage pedestrian and bicycle trips by featuring traffic calming measures.	Campus improvement projects always take these factors into consideration.	Motor Vehicles	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.
Providing conductive/inductive electric vehicle charging stations.	Electric vehicle charging stations are being considered in partnership with the City of Riverside.	Motor Vehicles	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.
Increasing on-campus housing for students and staff.	UCR is committed to providing on-campus housing for 50% of its student population. Additionally, UCR owns and manages faculty/staff housing close to campus.	Motor Vehicles	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.
Implementing land use strategies to encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density development along transit corridors.	UCR owns and manages faculty/staff housing close to campus.	Motor Vehicles	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.

Reduction Strategy	Implementation	Targeted Emission Source	Project Consistency
Including mixed-use, infill, and higher density in development projects to support the reduction of vehicle trips, promote alternatives to individual vehicle travel, and promote efficient delivery of services and goods.	UCR is committed to providing on-campus housing for 50% of its student population in the long term. It has promoted the University Village project and continues to work with the City of Riverside on mutually beneficial opportunities.	Motor Vehicles	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.
Construction waste managed during projects.	UCR is committed to LEED Silver. Major Renovations (MR) credits require careful consideration of waste management protocols.	Solid Waste	Consistent. To comply with LEED, the project will manage its construction waste.
Uniform outdoor cluster recycling provided.	Outdoor cluster recycling is available at high intensity use areas on campus. UCR is committed to expanding the program and has recently established a transfer station to separate recycle items.	Solid Waste	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.
Introduced campus composting program, including food waste receptacles in appropriate areas with signage.	UCR has an ongoing composting program.	Solid Waste	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.
Developing and implementing sustainable operations in Housing, Dining and Residential Services (HDRS) to include waste reduction, recycling, cleaning supplies, water and energy use.	Ongoing initiative that is being expanded when feasible in collaboration with related campus units.	Solid Waste	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.

**Table 4.3-7  
GHG Reduction Measures for Future Implementation**

<b>Reduction Strategy</b>	<b>Implementation</b>	<b>Targeted Emission Source</b>	<b>Project Consistency</b>
Develop a campus certification program for departments or groups meeting sustainability or emissions reductions targets.	Provide targets for departments with official recognition of those departments that meet them.	Energy Consumption	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.
Develop energy intensity standards for the campus's major space usage types.	Include strategy in design and construction guidelines and/or initiate for retrofit projects.	Energy Consumption	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.
Draft and adopt "cool roof" guidelines, require in all new construction projects and retrofit of existing roofs.	Include strategy in design and construction guidelines and/or initiate retrofit projects.	Energy Consumption	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.
Incentive or cost-sharing program to encourage departments or administrative groups to replace older appliances and equipment.	Establish a campus-level fund to support departments in replacing appliances. Consider loan program or joint curricular program to fund operations.	Energy Consumption	Not applicable. This is a new building.
Install light emitting diodes (LEDs) for traffic, street and other outdoor lighting.	Replace older lighting with modern high-efficiency lighting.	Energy Consumption	Not applicable. This is a new building.
Launch fume hood sash management campaign.	Education, signage, and possible installation of sensors to shut off fume hoods when not in use; also deploy a "shut the sash" campaign to shape user behavior and save energy.	Energy Consumption	Consistent. Fume hood use at the facility would be very limited. However, EH&S staff will implement the measure.

<b>Reduction Strategy</b>	<b>Implementation</b>	<b>Targeted Emission Source</b>	<b>Project Consistency</b>
Reduce business air travel by developing programs and technologies for remote conferencing.	Purchase equipment for videoconferencing; develop policy encouraging or requiring remote conferencing under specific circumstances (travel distance, type of event, etc.).	Air Travel	Not applicable due to the nature of the proposed facility.
Limit idling time for commercial vehicles, including delivery and construction vehicles.	Post signage in loading/unloading zones and loading docks; enforce via campus police.	Motor Vehicles	Consistent. Signage is included in the proposed project.
All truck loading and unloading docks shall be equipped with one 110/208 volt power outlet for every two dock doors. Diesel trucks shall be prohibited from idling and must be required to connect to the 110/208 volt power to run any auxiliary equipment. Signage shall be provided.	Include strategy in campus operations guidelines.	Motor Vehicles	Consistent. Power outlets will be provided at the loading docks.
Implement a pilot program to implement zero waste events.	Include strategy in campus operations guidelines.	Solid Waste	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.
Work with vendors to reduce unnecessary packaging.	Include strategy in campus purchasing guidelines.	Solid Waste	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.
Encourage environmentally responsible purchasing. Require or give preference to products that reduce or eliminate indirect greenhouse gas emissions, e.g., by giving preference to recycled products over those made from virgin materials.	Include strategy in campus purchasing guidelines.	Solid Waste	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.
Favor projects that use materials which are resource efficient, recyclable, with long life cycles and manufactured in an environmentally friendly way.	Include strategy in campus design and construction guidelines.	Energy Consumption	Not applicable. This is a campus-wide initiative and not a project-level GHG reduction strategy.

Reduction Strategy	Implementation	Targeted Emission Source	Project Consistency
Implement a comprehensive food procurement program that supports local and/or sustainable foods. Procure sustainable foods for 30% of total food purchases.	Include strategy in purchasing guidelines.	Dining	Not applicable due to the nature of the proposed facility.
Educate patrons about sustainable food choices.	Develop educational program/campaign.	Dining	Not applicable due to the nature of the proposed facility.
Certify one restaurant as a green business by December 2011. Work with third-party food service providers on campus to green their operations.	Certify using selected system such as Green Seal's Restaurants and Food Services Operations certification program, or the Green Restaurant Association certification program. Incorporate requirements in contracts with third party food service providers.	Dining	Not applicable due to the nature of the proposed facility.
Reduce use of food stuffs with a large CO <sub>2</sub> footprint.	Include strategy in purchasing guidelines.	Dining	Not applicable due to the nature of the proposed facility.
Trayless Dining.	Implement across campus, develop alternatives for the summer quarter.	Dining	Not applicable due to the nature of the proposed facility.



## 4.4 HAZARDS AND HAZARDOUS MATERIALS

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### 4.4.1 INTRODUCTION

This section describes existing conditions related to the use, storage, and transport of hazardous materials on the UCR campus and analyzes the potential for implementation of the proposed Environmental Health & Safety (EH&S) Expansion, Parking Lot 27 (proposed projects), and the related Corporation Yard reorganization and existing EH&S buildings re-use (related projects) to create a significant hazard through the routine transport, use, or disposal of hazardous materials, or through the release of hazardous materials into the environment.

The information included in this section was taken from various sources, including the UCR Department of Environmental Health and Safety, the State Department of Toxic Substances Control (DTSC), the 2005 LRDP EIR, 2005 LRDP Amendment 2 EIR, other previous environmental documentation prepared for the UCR campus, and other campus data sources.

In response to the Notice of Preparation (NOP) issued for this EIR, the City of Riverside requested preparation of a health risk assessment; analysis of potential risks associated with transportation of hazardous materials; and analysis of potential impacts related to placement of the facility near the UCR Child Development Center and residential uses. Members of the public stated that, in addition to these issues, the EIR should address security at the facility and the potential risks associated with accidental release of hazardous materials due to accidents or natural disasters such as earthquakes.

A project-specific health risk assessment was not performed because of the small size of the project and the minimal emissions anticipated from the operation of the proposed facility. Risks related to hazardous materials use, including potential emissions, are discussed in greater detail below. The other topics raised during scoping are also discussed in the impacts analysis presented below.

### 4.4.2 EXISTING CONDITIONS

The term “hazardous material” is defined in different ways for different regulatory programs. This EIR uses the definition given in California Health and Safety Code Sections 25501(n) and (o), which define hazardous material as:

*Any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous wastes, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health*

*and safety of persons or harmful to the environment if released into the workplace or the environment.*

By convention, most hazardous materials are thought to be hazardous chemicals, but certain radioactive materials and biohazardous materials, as defined here, are also hazardous. A “hazardous waste,” for the purpose of this analysis, is any hazardous material that is abandoned, discarded, or recycled, as defined by the California Health and Safety Code Section 25124. In addition, hazardous wastes occasionally may be generated by actions that change the composition of previously non-hazardous materials. The criteria that characterize a material as hazardous also characterize a waste as hazardous: toxicity, ignitability, corrosivity, or reactivity.

#### 4.4.2.1 Hazardous Materials at UCR

As stated in the 2005 LRDP Amendment 2 EIR, the Campus is a generator of hazardous waste, which includes chemical, radioactive, and biohazardous waste. The policies and procedures for the safe management of hazardous materials and wastes at UCR are approved and administered at the Vice Chancellor level. The UCR Vice Chancellor Finance and Business Operations (VC-FBO) organization includes EH&S, which is the principal administrator for hazardous materials/waste management on the UCR campus. EH&S is charged with issuing policies (approved by the VC-FBO), evaluating academic and administrative support departmental activities, and disseminating general information regarding the handling, storage, and disposal of hazardous materials and wastes, in part through discussions with people who generate the waste, training of students, visitors and employees, and through the distribution of various safety guidance documents and other publications (UCR 2011a). While the largest quantities of hazardous materials used on the campus are associated with vehicles (fuel) and agricultural operations (fertilizer), hazardous materials are also used in research and instruction. The primary users of hazardous materials include the following departments:

- Biochemistry
- Bioengineering
- Biology
- Biomedical Sciences
- Botany and Plant Sciences
- Cell Biology & Neuroscience
- Chemical & Environmental Engineering
- Chemistry
- College of Engineering-Center for Environmental Research & Technology
- Earth Sciences
- Electrical Engineering
- Entomology
- Environmental Sciences
- Mechanical Engineering
- Nematology
- Physics and Astronomy
- Plant Pathology & Microbiology

Hazardous materials that are used by these departments include chemicals with hazard characteristics of flammables and combustibles, acids and bases, biohazards, pesticides and herbicides, energetic materials, compressed gases, cryogenic fluids, radioactives, oxidizers, and toxins in the liquid, solid, and gaseous state (UCR 2011a).

In addition, maintenance and physical plant endeavors on campus, including grounds, custodian services, fleet services, pest management, and craft shops, also use a wide variety of commercial products formulated with hazardous materials during the course of daily campus operations. These include fuels, oils and lubricants, cleaners, solvents, paints, pesticides, adhesives, sealers, refrigerants, and others. Ongoing facilities management activities also include the operation and maintenance of boilers and other central plant equipment, underground storage tanks, asbestos abatement projects, and the replacement of electrical equipment (e.g., transformers and capacitors) containing polychlorinated biphenyls (PCBs). PCBs are currently used in transformers and capacitors located in several campus buildings and facilities. Also, almost all campus buildings contain commercial products (e.g., cleaners, copier toners, etc.) that could be considered “hazardous materials” under regulatory definitions, and there are several locations on campus where oil is stored (UCR 2011a).

In conformance with the State Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Law), UCR has prepared and regularly updates a Business Plan which contains information about the location of, and emergency procedures for, campus buildings in which hazardous materials are handled. The Business Plan Law requires periodic reporting of inventory changes at UCR to the local administering agency, which is the City of Riverside Fire Department (RFD). The RFD has real-time access to the campus chemical inventory, which includes the names and quantities of all hazardous chemical materials found on campus in quantities greater than 1 gallon of liquid, 10 pounds of solids, or 100 cubic feet of gas per building. Compressed gases, fuels, and certain bulked waste chemicals (e.g., solvents such as toluene and xylene) are examples of the kinds of chemicals that are subject to Business Plan reporting requirements.

EH&S provides instructions to campus users of hazardous materials regarding proper disposal of the resulting hazardous wastes at UCR; these include prohibitions against the discharge of any hazardous wastes into storm drains or the sanitary sewer system. **Table 4.4-1, Amount of Hazardous Waste Handled by EH&S**, identifies the amounts of hazardous waste currently handled by EH&S on the UCR campus each year.

**Table 4.4-1**  
**Amount of Hazardous Waste Handled by EH&S**

Waste Type	Pounds/year
Medical/Biohazardous	280 <sup>1</sup>
Radioactive	2,500
Chemical Waste	65,000
Electronic	11,000
Universal	7,500

Source: UCR EH&S Department, 2010.

<sup>1</sup> This represents the amount of waste EH&S transports annually, which is a small fraction (less than 10 percent) of the total amount of medical/biohazardous waste (about 2,800 pounds) generated on campus.

### ***Chemical Hazardous Waste***

There are 14 types of chemical waste managed by EH&S, including solvents, cleaners, paint/sludge, asbestos, mercury, photochemicals, formalin (formaldehyde solution), oil/lubricants, pesticides, adhesives/sealers, acids, energetic materials, air or water reactives, and organic and inorganic laboratory chemicals (UCR 2011a). UCR does not dispose of hazardous chemical waste on site, and on-site storage for all waste types is limited to no longer than 90 days. All hazardous waste is shipped off site to permitted Transportation, Storage, and Disposal Facilities (TSDF) using contracted, licensed, and permitted hazardous waste transporters. UCR tracks waste with manifests as required by federal and State law. UCR uses only UC-approved and -audited TSDF vendors. In addition, UCR must file reports with the State detailing waste disposal and recycling activities in addition to paying annual hazardous waste taxes based on volumes of waste disposed (UCR 2011a).

Chemical hazardous waste is collected and managed by EH&S's Integrated Waste Management Program staff. EH&S picks up the chemical hazardous wastes from the locations where the wastes are generated and transports them to the existing EH&S facility for temporary storage and removal by permitted and approved vendors. Before EH&S staff collects waste materials, the materials must be packaged and labeled properly, which includes placing them in appropriate sealed containers, segregating incompatible materials, and identifying components with concentrations. Hazardous wastes are stored by EH&S in the "90-Day Storage Area" at the EH&S facility for a maximum of 90 days, although they are generally removed approximately every 60 days. Chemical wastes are further segregated by type, and consolidated, bulked, or lab packed at the EH&S facility before removal from the campus by a permitted and approved vendor to permitted off-campus facilities for incineration, treatment, recycling, or other

means of disposal (UCR 2011a). Chemical hazardous waste generated on the campus is picked up from the EH&S facility by the vendor approximately six times per year.

#### ***Radioactive Waste***

The UCR campus generates radioactive wastes from research and teaching activities. Researchers and health care professionals on campus use radioactive materials to study various biochemical functions in animals and humans. Limited types and quantities of radioisotopes are used in research laboratories. The amount of radioactive waste generated by the campus varies depending upon changes in research projects, techniques, and methodologies, but is significantly less than the chemical waste. All radioisotopes used on campus are listed in the campus Broadscope Radioactive Materials License issued by the State and must be authorized by the campus Radiation Safety Committee, which includes the Radiation Safety Officer, an EH&S staff member (UCR 2011a).

Like chemical wastes, low-level radioactive waste (LLRW) from campus teaching, research, and health sciences-related activities is collected and managed by EH&S's Integrated Waste Management Program staff. EH&S normally collects dry and liquid LLRW directly from its sources (research or clinical users). In accordance with strict regulatory guidelines and procedures, EH&S transports the waste to the EH&S facility. In accordance with these guidelines, EH&S prepares and packages the waste for shipment and disposal, or for decay-in-storage, or permitted drain disposal at the EH&S facility on the campus. Dry LLRW with a half-life of less than 100 days is stored for decay for 10 half-lives (as part of the decay-in-storage program) in accordance with the Broadscope Radioactive Materials License until its radiation levels are indistinguishable from background levels. During this period, waste is currently stored in a specialized container located outside the EH&S facility. The waste is then packaged for disposal as nonradioactive waste and placed in dedicated storage containers for collection and transportation to a solid waste landfill. Liquid LLRW with a half-life of less than 90 days is bulked and containerized for off-site disposal. For wastes that are longer-lived, the final disposal depends on the hazard class of the LLRW. UCR contracts with a radioactive waste vendor to remove radioactive waste from the campus for disposal at approved radioactive waste facilities. Radioactive waste generated at the campus is generally removed by the vendor for disposal two times a year. No radioactive waste is incinerated on campus.

#### ***Biohazardous and Medical Waste***

Various biologically hazardous substances, such as recombinant DNA molecules, infectious agents, parasites, and other biological agents, are used for research on the UCR campus. Biohazardous waste includes any laboratory or research waste that is potentially infectious to humans, plants or animals, or

that would pose a potential threat to the community or the environment (e.g., organisms with significant environmental impact or transgenic or recombinant organisms). Medical waste includes all sharps and any biohazardous waste from research involving the treatment, diagnosis, or immunization of humans or animals.

UCR policies for monitoring, routine inspection, reporting, and waste management have been developed to minimize community and worker exposure to potential hazards associated with biohazardous/medical waste and biological hazards. Activities that create the potential for biohazardous aerosols are conducted in biosafety cabinets, which filter all released air to remove biohazardous materials. Biosafety cabinets and equipment with special filters to remove biological agents that fall into group 2 or 3 hazard classes are disinfected at the end of the workday or whenever they are grossly contaminated. The cabinets used for Biosafety Level 2 or above agents must also be certified when installed, annually, and whenever they are moved or undergo major servicing (HEPA filter replacement, motor repairs, etc.).

The amount of biohazardous wastes generated at UCR is about 2,800 pounds per year; as shown in **Table 4.7-1**, EH&S handles approximately 10 percent of this volume. UCR complies with regulations that specify that infectious wastes be stored in refrigerated (below freezing) facilities for not more than 90 days and that such wastes be properly packaged, labeled, and disposed. If biohazardous wastes are stored above freezing, then they may be stored for 7 days or less before treatment or removal by a vendor. There are no licensing requirements for the generation of infectious waste. Infectious waste may also be rendered noninfectious through steam and pressure sterilization (using an autoclave). UCR contracts with a biohazardous waste vendor to ship infectious wastes from the campus off site for treatment elsewhere. Biohazardous/medical waste is picked up from the EH&S facility by the licensed vendor once a month. The majority of medical waste from campus is collected directly from the on-campus facilities where it is produced and transported off-campus for disposal elsewhere. The Campus Health Center, which produces the largest quantity of medical waste, contracts with a vendor to remove medical waste weekly. Animal carcasses from animal-handling facilities are picked up by a biohazardous waste disposal vendor through a contract with the Veterinarian's Office. Other campus-generated biohazardous waste is not handled by EH&S; it is generally autoclaved by the laboratory or department that generated the waste to render it non-hazardous before collection directly from laboratories and other facilities on campus and then transported off-campus for disposal.

#### ***Site Contamination***

The campus is listed on the CORTESE list, which is a list of hazardous waste sites compiled by the State of California pursuant to Government Code Section 65962.5, due to contamination that was identified on the West Campus. This site, as well as each of the other campus locations where spills or leaks had

occurred or soil contamination has been identified, has been remediated and received regulatory closure; no further action at those locations is necessary (UCR 2011a).

### ***Building Materials Contamination***

#### **Asbestos**

Asbestos, a naturally occurring fibrous material, was used for years in many building materials for its fireproofing and insulating properties. Any activity that involves cutting, grinding, or drilling during building renovation or demolition or relocation of underground utilities could release friable asbestos fibers unless proper precautions are taken. In accordance with Sections 25915 through 25916 of the California Health and Safety Code, UCR maintains a campus-wide inventory of locations of asbestos-containing building materials and provides annual campus-wide notification of locations containing asbestos. Appropriate signs are posted when asbestos-containing materials are disturbed during construction or renovation at campus locations, in accordance with State and South Coast Air Quality Management District regulations (UCR 2011a).

Asbestos surveys of the Mail Services Building and the existing EH&S facility found asbestos in interior flooring and drywall mud.

#### **Lead**

Lead is a naturally occurring metallic element. Among its numerous uses and sources, lead can be found in paint, water pipes, solder in plumbing systems, and soils around buildings and structures painted with lead-based paint. In 1978, the federal government required the reduction of lead in house paint to less than 0.06 percent (600 parts per million). Because many structures on the UCR campus were constructed prior to 1978, wall surfaces and other building materials may contain lead-based paints. As required by the Residential Lead-Based Paint Hazard Reduction Act, the Campus provides appropriate disclosure of lead hazards and also provides information from the U.S. Environmental Protection Agency (U.S. EPA) regarding the risks and effects of lead exposure (UCR 2011a).

#### **Polychlorinated Biphenyls (PCBs)**

PCBs are organic chemicals, usually in the form of oil, that were formerly used in electrical equipment, including transformers and capacitors, primarily as electrical insulators. Some PCB-containing electrical equipment (e.g., transformers and capacitors) are still present on the UCR campus. In addition, some fluorescent light ballasts that contain PCBs could also be present in existing buildings. The Campus has an ongoing program to replace electrical equipment that contains PCBs (UCR 2011a).

## Mercury

Elemental mercury is liquid, inorganic metal that is not soluble in water. It is commonly used in laboratory and medical equipment such as thermometers and manometers (used for measuring pressure). Other uses include electrical equipment and some water pumps. Due to accidental spills and historic disposal practices before the adoption of more stringent environmental regulations pertaining to hazardous waste disposal, it is possible that elemental mercury may be present in research laboratory sink traps, in cupboard floor spaces, or in sewer pipes that could be exposed in the event of building renovation or demolition (UCR 2011a).

### 4.4.2.2 UCR Programs and Practices

The EH&S has the primary responsibility of coordinating the management of hazardous materials on campus. This office has broad administrative and surveillance responsibilities over operations on campus, to provide departments and users the tools such that they may ensure that appropriate standards of safety including biological and radiation safety, fire prevention, sanitation, and hygiene are met for the protection of campus personnel, property, and the public. EH&S develops and assists the campus community in the implementation of compliance strategies for all federal and State regulations governing the handling of hazardous materials and wastes on the campus (UCR 2011a).

Specific EH&S hazardous waste management responsibilities include the following:

- Collection of hazardous materials from laboratories
- Determination of the recyclability of the materials
- Delivery of hazardous waste to a short-term handling facility
- Classification of hazardous waste by characteristics, physical form and hazard class
- Segregation of waste by compatibility and reactivity
- Packaging of compatible waste in accordance with applicable federal and State regulations
- Appropriate labeling of each waste container
- Arrangement for the transportation and disposal of hazardous wastes by a licensed vendor to licensed treatment, storage or disposal facility (TSDF)

To help improve the health, safety, and environmental performance in all work practices and activities on the UCR campus, EH&S offers the following programs and services:

- Biosafety



- Emergency Management
- Campus Emergency Response Plan
- Environmental Health
- Environmental Programs
- Hazardous Materials Program
- Spill Prevention, Control & Countermeasures Plan
- Industrial Hygiene & Safety
- Laboratory/Research Safety
- Radiation Safety
- Training & Publications
- Integrated Waste Management

Detailed information regarding these programs are provided in the Campus's EH&S website (<http://www.ehs.ucr.edu/>), which provides each program's elements, contact personnel, applicable manuals and policy, and Web links to other pertinent government agencies and information sources (UCR 2011a). A brief description of each program is provided below; more complete descriptions of all EH&S programs are included in the 2005 LRDP Amendment 2 EIR.

#### ***Biosafety***

The Biosafety program managed by EH&S is designed to minimize the health risk to employees, students, and the public from potential exposure to biohazardous materials that are used in research and teaching activities at UCR. At UCR, medical waste is treated by on-site steam sterilization within the generating building or facility using registered and approved autoclaves, incinerated in the permitted on-site incinerator, or transported off site by a registered hazardous waste hauler for treatment at a permitted medical waste treatment facility (UCR 2011a). EH&S handles a relatively small proportion of campus-generated medical waste, primarily sharps.

#### ***Emergency Management and Emergency Response Plan***

The Emergency Management program develops campus and department emergency operations plans to ensure preparedness against earthquakes, fires, and hazardous material spills. This program manages both the Campus Emergency Operations Center (EOC) and hazardous materials emergency response

team (ERT) (UCR 2011a). To fulfill statutory requirements of the California Code of Regulations, a Campus Emergency Operations Plan (EOP), which is implemented by EH&S staff, has been developed to establish a continuing state of emergency readiness and response on the UCR campus. The plan will 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. Emergency incidents that result from known or suspected hazardous materials spills or releases to the air, ground, or water on- or off-campus are among the many types of events that will be managed under this plan. The plan is an all-hazard based approach and provides the basic administrative structure and protocols necessary to cope with credible emergencies (UCR 2011a).

#### *Hazardous Materials Program*

The Hazardous Materials Program (HMP) manages the campus chemical inventory and hazard information in compliance with federal, State, and local hazardous materials regulations. HMP oversees the Campus Business Plan described above, and generates and maintains building specific information for emergency response personnel to help insure employee safety and environmental responsibility (UCR 2011a). The HMP encourages efficient use of hazardous chemicals to reduce both total hazardous materials use and the amount of hazardous waste generated on campus. The program also includes the Chemicals for Redistribution service, which reduces the volume of hazardous materials that ultimately requires disposal. The available inventory lists of all the chemicals in the program storage room, all of which are available to the campus community at no cost.

#### *Radiation Safety*

The Radiation Safety (RS) staff serves to ensure project safety while satisfying the requirements of regulations, policies, and procedures. Policies and procedures related to the use of radiation on campus are approved by the UCR Radiation Safety Committee and implemented by the RS Officer and associated staff. RS facilitates and enhances campus research by providing a full range of radiation safety services to individuals working with all types of radiation (ionizing, non-ionizing, and lasers). Under UCR's policy, the level of radiation exposure to employees, students, and the public must be "As Low as Reasonably Achievable" (ALARA) (UCR 2011a).

EH&S implements the RS program, which includes surveillance of all users of radioisotopes and/or radiation-producing machines and equipment, monitoring of exposure levels, investigation of incidents, safety consultation, training in radiation safety, radiation safety services, and management of radioactive wastes. The EH&S Director is responsible for the review of UCR policies on radiation and radiation

safety. In collaboration with the Radiation Safety Committee, EH&S has developed the UCR Radiation Safety Manual to serve as the principal source of guidance for the safe and responsible use of sources that produce ionizing and non-ionizing radiation by laboratory personnel at UCR. The Manual contains policies and procedures that satisfy the requirements of the various agencies that regulate the use of these radiation sources, and details how the appropriate local, State, and federal regulations will be applied at UCR. In accordance with California regulations and the University Broad Scope Radioactive Materials License, individuals planning to use radioactive materials must apply for an authorization from EH&S (UCR 2011a). In conformance with legal requirements, incoming radioactive material is typically routed through the EH&S Radiation Safety for monitoring and recording of each acquisition.

##### *Training Program*

The Training Program coordinates mandatory and specialized training and publications to advise campus personnel of health, safety, and environmental programs on campus. Workplace safety training is required at the time of hire, when new duties are assigned, and when a new hazard is introduced into the workplace (UCR 2011a). Because of space constraints at the existing EH&S facility, training locations are currently scattered around campus. The proposed EH&S Expansion facility would provide adequate space for these training programs.

##### *Integrated Waste Management*

EH&S administers the Integrated Waste Management Program, which supports the campus mission of instruction and research by providing campus personnel with the tools, information, and assistance necessary to safely manage hazardous waste and minimize hazardous waste generation. Integrated Waste Management further protects hazardous waste generators, the campus environment, and the campus administration by providing hazardous waste consultation services, and compliance guidelines, and ensuring safe, legal, long-term solutions for hazardous waste management. In addition, EH&S's Waste Management staff participates as members of the Campus Emergency Response Team (UCR 2011a).

The program consists of hazardous waste management, waste minimization, and regulatory compliance information. Management information comprises the bulk of the program, and includes guidelines regarding the determination and characterization of hazardous waste. The program guidelines also lists the chemical profiles, handling and use precautions (including protective equipment), and accumulation, storage, storage compatibility, labeling, and disposal procedures for all substances that are used on campus and have been classified as extremely hazardous or acutely hazardous (UCR 2011a).

### *Spill Prevention, Control, & Countermeasures Plan*

In accordance with the regulatory requirements of Title 40 of the Code of Federal Regulations (CFR) Part 112, a Spill Prevention, Control, and Countermeasures (SPCC) Plan has been prepared for UCR. The objectives of the plan are to help define the spill prevention, control, and countermeasures to be implemented by UCR in the event spills from oil storage containers and tanks occur on the campus (UCR 2011a). The SPCC Plan addresses the following topics:

- Inspections and Records—requires annual mechanical and electrical inspections, weekly tank containment inspections, and annual SPCC Plan compliance inspections. All records of tank inspections, tank information, facility diagrams, SPCC Plan updates, and any other information that is a part of this plan are regularly updated and maintained in the UCR EH&S office for a period of at least three years.
- Facility Drainage—defines the drainage pattern for the different portions of the campus and the receiving water body, and develops a worst-case scenario regarding potential spills.
- Bulk Storage Tanks—provides a summary of the campus' storage tanks and containers.
- Personnel Training and Spill Prevention Procedures—addresses plant personnel training regarding proper procedures for tank filling, product dispensing, and spill prevention and cleanup.
- Bulk Liquid Transfer Operations—provides procedures for tank filling and product dispensing and loading dock operations.
- Security—addresses lighting and campus security, and provides security measures regarding gates and fences, fuel dispensers, and protection from vehicles.

The plan requires an annual review and update by a SPCC “Designated Person” to ensure that all the requirements within the plan are achieved. EH&S has an emergency hazardous material response truck equipped with appropriate personal protective equipment, self-contained breathing apparatus, hazardous material storage receptacles, absorbent booms, pads, and an absorbent powder that could be deployed during spillage incidents (UCR 2011a).

#### **4.4.2.3 Groundwater Conditions**

The campus overlies the Riverside II Groundwater sub basin of the larger Upper Santa Ana River Groundwater Basin, which underlies the entire Riverside area. Measured depth to groundwater on campus is anticipated to range from 60 to 200 feet below grade, with flow in a generally westerly direction. Although there is no groundwater contamination within the campus known to UCR, the extent to which groundwater quality may have been affected by historic activities is unknown. The campus is not identified as a significant groundwater recharge area (UCR 2011a).

#### 4.4.2.4 Hazardous Materials Transportation

UCR contracts with licensed hazardous waste transporters to ensure that all hazardous wastes generated on the campus are transported off site for treatment or disposal at permitted hazardous waste facilities. Hazardous materials are routinely transported by truck or rail. The U.S. Department of Transportation (USDOT), Office of Hazardous Materials Safety, prescribes strict regulations for the safe transportation of hazardous materials, as outlined in Title 49 of the Code of Federal Regulations in California. The California Highway Patrol (CHP) has the primary responsibility for enforcing federal and State regulations and responding to hazardous materials transportation emergencies. Specifically, Section 31303 of the California Vehicle Code requires that when hazardous materials are transported on state or interstate highways, the highway(s) that offer the shortest overall transit time possible shall be used. With the exception of high-level radioactive wastes and certain poisons and explosives, all other hazardous materials may be transported by common carrier on any street within and adjacent to the campus to deliver or remove such materials to and from the campus and other businesses in the area. Through-transport is not allowed, however. Transportation of hazardous materials along any city or State roadway or rail lines within or near the campus is subject to all relevant USDOT, CHP, and California Department of Health Services (DHS) hazardous materials transportation regulations, as applicable. Regular inspections of licensed waste transporters are conducted by a number of agencies to ensure compliance with requirements that range from the design of vehicles used to transport wastes to the procedures to be followed in case of spills or leaks during transit (UCR 2011a).

#### 4.4.2.5 Hazardous Materials Emergency Response

The City of Riverside Fire Department (RFD) provides fire response services to the campus. The RFD also provides hazardous materials incident emergency response services as backup to UCR Hazardous Material Emergency Response Team. EH&S has also developed an Emergency Response Plan that covers a broad range of emergency situations related to both human-made and natural disasters and works with the RFD to continually review and update policies and procedures to ensure a coordinated approach to hazardous materials incident planning and response (UCR 2011a).

### 4.4.3 REGULATORY FRAMEWORK

The management of hazardous materials and hazardous wastes, including chemicals, radioactive materials, and biohazardous materials, is subject to numerous laws and regulations at all levels of government. These laws apply to instructional and research activities, operations and maintenance work, and other activities on campus. Summaries of federal and State laws and regulations related to hazardous materials management are presented below. California State law allows for certain hazardous materials

regulatory programs, including those pertaining to USTs, hazardous materials storage, and hazardous materials management, to be delegated to local agencies. State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and, in the event that such materials are accidentally released, to prevent or to mitigate injury to health or the environment (UCR 2011a).

Primary federal agencies with responsibility for hazardous materials management include the U.S. EPA, Department of Labor (Federal Occupational Health and Safety Administration [OSHA]), USDOT, and Nuclear Regulatory Commission (NRC).

Primary State agencies with jurisdiction over hazardous chemical materials management are the DTSC and the Regional Water Quality Control Board (RWQCB). Other State agencies involved in hazardous materials management are Cal/OSHA, the Department of Industrial Relations (state OSHA implementation), State Office of Emergency Services (OES—California Accidental Release Prevention implementation), California Department of Fish and Game (CDFG), California Air Resources Board (CARB), CHP, State Office of Environmental Health Hazard Assessment (OEHHA—Proposition 65 implementation), and California Integrated Waste Management Board (CIWMB) (UCR 2011a).

The primary local agency, known as the Certified Unified Program Agency (CUPA), with responsibility for implementing federal and State laws and regulations pertaining to hazardous materials management is Riverside County Environmental Health Department, Hazardous Materials Unit. The Unified Program is the consolidation of six State environmental regulatory programs into one program under the authority of a CUPA. A CUPA is a local agency that has been certified by Cal-EPA to implement the six State environmental programs within the local agency's jurisdiction. A Participating Agency (PA) is a local agency that has been designated by the local CUPA to administer one or more Unified Programs within their jurisdiction on behalf of the CUPA. The City of Riverside Fire Department maintains a special program that regulates hazardous materials through disclosure and risk management plans as well as above ground storage tank referral in cooperation with the County of Riverside. Thus, the City of Riverside Fire Department is a PA with Riverside County Environmental Health Department, Hazardous Materials Unit as the CUPA (UCR 2011a).

#### **4.4.3.1 Medical Waste/Biohazardous Materials Regulations**

The United States Department of Health and Human Services (USDHHS), Centers for Disease Control and Prevention, and National Institutes of Health prescribe containment and handling principles for use in microbiological, biomedical, and animal laboratories. The California Department of Health Services Medical Waste Management Program enforces the Medical Waste Management Act and related

regulations. All UCR laboratories follow the mandated hygienic practices. Based on the potential for transmitting biological agents and the rate of transmission of these agents, and based on the quality and concentrations of biological agents produced at a laboratory, Biosafety Levels are defined for four tiers of relative hazards. Federal and State laws, such as the Animal Welfare Act, specify standards for recordkeeping and the registration, handling, care, treatment, and transportation of animals. Such laws are enforced by the U.S. Department of Agriculture and DHS. Further, UCR policies for monitoring, routine inspection, reporting, and waste management have been developed to reduce potential community and worker exposure to hazards associated with the use of animals in research. Animal parts, tissues, or fluids suspected of containing an infectious agent must be managed as a biohazardous waste, as defined in California Health and Safety Code Section 117635. The management of biohazardous wastes generated by research animals must comply with USDHHS guidelines and DHS regulations pertaining to such materials (UCR 2011a).

#### 4.4.3.2 Radioactive Materials Regulations

The Radiologic Health Branch of the California Department of Health Services administers the federal Atomic Energy Act, the California Radiation Control Law, and related regulations, which govern the receipt, storage, use, transportation, and disposal of sources of ionizing radiation (radioactive material) and provide for protecting the users of these materials and the general public from radiation hazards. The Atomic Energy Act (42 U.S.C. Sections 2011 through 2259) (AEA) ensures the proper management of source, special nuclear, and byproduct material. The AEA and the statutes that amended it delegate the control of nuclear energy primarily to the Department of Energy, the Nuclear Regulatory Commission, and the U.S. EPA. The California Radiation Control Law (California Health & Safety Code Sections 114960 through 114985) is a regulatory program designed to provide for compatibility with the standards and regulatory programs of the federal government and integrate an effective system of regulation within the State. The program regulates sources of ionizing radiation and establishes procedures for performance of certain regulatory responsibilities with respect to the use and regulation of radiation sources. These laws and regulations govern the receipt, storage, use, transportation, and disposal of sources of ionizing radiation (radioactive material) and protect the users of these materials and the general public from radiation hazards (UCR 2011a).

The use of radioactive materials on campus is specifically subject to the conditions of a Broadscope Radioactive Materials License issued and administered by the Radiation Safety Program of EH&S. All radiation producing machines must be registered with the California Department of Health, Radiological Health Branch and individuals planning to use radioactive materials must apply for an authorization from EH&S. Broadscope licensing requirements include routine inspection and monitoring of areas where radioactive materials are used to ensure that surfaces are not contaminated with radioactivity

above background levels. Under the Broadscope license, renovation or demolition of facilities using radioactive material requires radiation testing and conducting decontamination and waste handling activities in accordance with applicable regulations (UCR 2011a).

### **4.4.3.3 Operational and Disposal Regulations**

#### *Worker Safety*

Cal/OSHA and the federal Occupational Safety and Health Administration (Fed/OSHA) are the agencies responsible for assuring worker safety in the handling and use of chemicals in the workplace. In California, Cal/OSHA assumes primary responsibility for developing and enforcing standards for safe workplaces and work practices (UCR 2011a).

#### *Hazardous Waste Handling*

The DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under the Resource Conservation and Recovery Act (RCRA) and the California Hazardous Waste Control Law. Both laws impose “cradle to grave” regulatory systems for handling hazardous waste in a manner that protects human health and the environment (UCR 2011a).

#### *Asbestos Regulations*

Asbestos is regulated as a hazardous air pollutant under the Clean Air Act and is, therefore, subject to regulation by the South Coast Air Quality Management District under its Rule 1403. Asbestos is also regulated as a potential worker safety hazard under the authority of the Fed/OSHA and Cal/OSHA. These rules and regulations prohibit emissions of asbestos from asbestos-related demolition or construction activities, require medical examinations and monitoring of employees engaged in activities that could disturb asbestos, specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos fibers, and require notice to federal and local government agencies prior to beginning renovation or demolition that could disturb asbestos (UCR 2011a).

#### *Lead Regulations*

Because of its toxic properties, lead is regulated as a hazardous material. Lead is also regulated as a toxic air contaminant (TAC). State-certified contractors must perform inspection, testing, and removal (abatement) of lead-containing building materials in compliance with applicable health and safety and hazardous materials regulations. The Residential Lead-Based Paint Hazard Reduction Act of 1992 (Title X) requires disclosures of the presence of lead paint in residential structures (UCR 2011a).



### *Hazardous Materials Transportation*

The USDOT regulates hazardous materials transportation between states. The State agency with primary responsibility in California for enforcing federal and State regulations and responding to hazardous materials transportation emergencies is the CHP. Together, these agencies determine container types used and license hazardous waste haulers for hazardous waste transportation on public roads (UCR 2011a).

### *Hazardous Materials Emergency Response*

California has developed an Emergency Response Plan to coordinate emergency services provided by federal, State, and local government and private entities. Response to hazardous materials incidents is one component of this plan. The State Office of Emergency Services administers the plan, which coordinates the responses of other agencies, including Cal-EPA, CHP, Department of Fish and Game, the Regional Water Quality Control Board (RWQCB), and the Radiologic Health Branch of the DHS. EH&S will continue to implement the plan at UCR, in cooperation with the RFD (UCR 2011a).

#### **4.4.3.4 Local Regulations**

The City and County of Riverside are required to comply with federal and State laws and regulations pertaining to hazardous materials management, including, but not limited to, Articles 79 and 80 of the Uniform Fire Code and applicable hazardous materials management requirements set forth in the Uniform Building Code (with California Amendments). Various departments and divisions within the City and County are responsible for monitoring and enforcement of such activities as hazardous materials storage (Business Plan), hazardous waste management, underground storage tank operation and removal, and fire prevention and emergency response (UCR 2011a).

The California Health and Safety Code grants discretionary authority to the local agency—typically the local CUPA—with oversight responsibilities to determine the need for preparation of a Risk Management Plan (RMP) pursuant to Health and Safety Code Section 25534(a). For facilities not previously subject to RMP requirements, but for which an RMP must be prepared, the RMP must be submitted in accordance with a schedule established by the administering agency after consultation with the stationary source (UCR 2011a).

#### 4.4.4 IMPACTS AND MITIGATION MEASURES

##### 4.4.4.1 Significance Criteria

The impacts related to hazards and hazardous materials from development of the proposed EH&S Expansion, Parking Lot 27, and the related projects would be considered significant if they would exceed the following significance criteria, in accordance with Appendix G of the *State CEQA Guidelines* and the UC CEQA Handbook:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area;
- For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- 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.

##### 4.4.4.2 CEQA Checklist Items Adequately Addressed in the Initial Study

The analysis in the Initial Study prepared for the proposed projects and related projects and circulated with the NOP concluded that further analysis of the following issues was not required in the EIR.

- Be located on a site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.

As discussed in the Initial Study (p. 49) (**Appendix 1.0**), sites affected by the proposed EH&S Expansion, Parking Lot 27, and related Corporation Yard reorganization and existing EH&S buildings re-use are not identified as hazardous materials sites in agency databases and do not have known or suspected contamination of site soil or groundwater. Furthermore, all contaminated sites on the campus have been remediated and received regulatory closure (UCR 2011a). Thus, implementation of the proposed projects and related projects would not create a significant hazard to the public or the environment related to exposure to soil or groundwater contamination, and this impact would be less than significant.

- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area.
- For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area.

The closest airports to the UCR campus are Flabob Airport, which is located approximately 4 miles to the west, and March Joint Air Reserve Base, which is located approximately 6 miles to the southeast. Lands affected by the proposed EH&S Expansion, Parking Lot 27, and related projects are not located within 2 miles of a public airport, public use airport, or a private airstrip and are not included within the airport land use plan for either the Flabob Airport or the March Joint Air Reserve Base. As a result, development of the proposed projects and related projects would not result in a safety hazard for people residing or working in the project area. No impact would occur.

- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Construction associated with the proposed projects and related projects could result in temporary lane or roadway closures and could temporarily affect areas that are currently identified as emergency assembly areas. Construction activities associated with the proposed projects would be guided by a range of LRDP Planning Strategies (PS), including Transportation 4, and would be required to implement existing campus Programs and Practices (PP), such as PP 4.7-7(a) and (b), which require the Campus to maintain at least one unobstructed lane in both directions on campus roadways and maintain adequate access for emergency vehicles when construction projects would result in roadway closures. In addition, future development on the campus, including the proposed projects, would require the implementation of LRDP Mitigation Measures (MM) 4.7-7(a) and (b) (provided in full under **Impact 4.4-2** below). These measures require the siting of construction staging areas to avoid designated evacuation zones and require that the Campus Emergency Operations Plan be updated as appropriate to account for new on-campus development, which may require that the locations for Campus Evacuation Zones be revised. Thus, the proposed projects would not impair the implementation of or physically interfere with an

adopted emergency response plan or emergency evacuation plan, and the impact would be reduced to a less than significant level with the implementation of MMs previously adopted by the University in conjunction with its adoption of the 2005 LRDP (as amended).

- 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.

Lands affected by the proposed EH&S Expansion, Parking Lot 27, and related projects, including the Corporation Yard, adjacent vacant land, and the existing EH&S facility are not located in a Fire Hazard Zone on the maps prepared by Cal Fire. Therefore, development of the proposed projects and related projects would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands and no impact would occur.

#### 4.4.4.3 Methodology

To determine whether implementation of the proposed EH&S Expansion, Parking Lot 27, and related projects would result in additional hazards related to the use, storage, transport, or release of hazardous materials, the potential for the proposed projects and related projects to result in an increase in the use, handling, storage and transport of hazardous materials was identified and evaluated.

#### 4.4.4.4 Relevant LRDP Mitigation Measures, Planning Strategies, and Programs and Practices

The 2005 LRDP Amendment 2 EIR identifies a series of Planning Strategies (PS), Programs and Practices (PP), and mitigation measures that are relevant to hazards and hazardous materials and includes mitigation measures to reduce impacts of buildout of the 2005 LRDP as amended. These measures are considered part of the proposed projects and related projects for purposes of this analysis. The full list of PSs, PPs, and LRDP MMs is included in **Appendix 1.0** of this EIR, and those relevant to hazards and hazardous materials for the proposed projects and related projects are provided in each impact discussion below.

#### 4.4.4.5 Project Impacts and Mitigation Measures

**Impact 4.4-1** Implementation of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and the related projects would not expose campus occupants or the public to significant hazards due to the routine transport, use, disposal, or storage of hazardous materials (including chemical and radioactive waste). The impact would be less than significant.

##### *Proposed Projects*

The existing EH&S facility operates under regulations enforced by the U.S. EPA and the Cal/EPA. Existing quantities of hazardous wastes handled at the EH&S facility are detailed below in **Table 4.4-2, Current and Projected Quantities of Hazardous Wastes Handled**. The table also provides the projected increase in hazardous waste that would require collection, transport, storage, and disposal by 2020.

**Table 4.4-2  
Current and Projected Quantities of Hazardous Wastes Handled**

Type of Waste	Existing (lbs/year) <sup>1</sup>	Projected (lbs/year) <sup>2</sup>
Radioactive Waste	2,500	Up to 10,000
Chemical Waste	65,000	Up to 260,000
Electronic Waste	11,000	Up to 44,000
Universal Waste	7,500	Up to 30,000

Source: UCR 2011

Notes:

<sup>1</sup> lbs/year = pounds per year.

<sup>2</sup> Represents an upper estimate of waste to be handled annually over the life of the project.

In addition, the Campus generates approximately 2,800 lbs/year of medical waste. The majority of medical waste from campus is not collected by UCR EH&S, but collected directly from the on-campus facilities where it is produced and transported off-campus by a contracted hauler for disposal elsewhere. Only about 280 lbs/year of medical waste (primarily sharps) is handled at the existing EH&S facility. Other campus-generated biohazardous waste is also not handled by EH&S; it is generally autoclaved to render it non-hazardous before collection directly from laboratories and other facilities on campus and then transported off-campus for disposal.

The UCR EH&S estimates that the total amount of hazardous wastes of all types generated on campus would increase to approximately 172 tons by 2020-2021. This estimate includes the projected increase in

School of Medicine-related medical waste that would be handled by UCR EH&S, although the School of Medicine's (SOM) medical waste could potentially be handled in a small facility specifically dedicated to SOM waste.

While the amount and type of hazardous materials may vary over time with the evolution of instruction and research activities and changes or additions to hazardous materials lists, the general range and type of hazardous materials used on campus are not expected to substantially change. UCR will continue to use materials, some of which are considered hazardous, during the course of daily operations.

The Campus will continue to implement PP 4.7-3, which requires the implementation of hazardous materials minimization strategies related to research, maintenance, and instructional activities

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.

Although the Campus would continue to implement its hazardous waste minimization program, increased hazardous materials use would generate increased quantities of hazardous wastes. The EH&S Expansion is specifically proposed because the existing EH&S facility is inadequate to temporarily store and eventually dispose by off-haul the amount of hazardous waste that is expected to be generated on campus. In addition, the current facility does not have adequate space to perform operations to consolidate and reduce hazardous wastes or to provide the training required under the programs EH&S administers.

#### **Hazardous Materials and Waste Handling Procedures**

The proposed EH&S Expansion project, which includes relevant 2005 LRDP Planning Strategies and Programs and Practices, would relocate and expand the EH&S facility. The proposed EH&S Expansion would handle hazardous wastes generated through laboratory and other academic uses and building and grounds maintenance. As with current conditions, these hazardous materials may include inorganic and organic chemicals, chemical reagents and reaction products, solvents, mercury, radioisotopes, biohazardous materials, fuels, oils, paints, cleaners, and pesticides. Currently, these wastes are placed in small (e.g., 0.01- to 55-gallon) containers at the point of generation and collected by EH&S staff during

routine waste pickup runs. Upon delivery to the existing facility, the wastes are either stored in the containers in which they are collected or are consolidated into larger containers, which are stored on site. Aqueous wastes are transferred using a pump rather than poured from one container to another to minimize the risk of spills or air emissions from evaporation. Under existing conditions, this operation is performed approximately once a week, requiring about 4 hours; the frequency would increase slightly as waste quantities increase with campus growth, but would still occur less than daily. Radioactive wastes, potentially explosive compounds, and universal waste are stored in specialized storage containers outside the building; these would be transferred to the new facility for the same uses. Radioactive waste is and would continue to be stored until it decays or until shipment, as appropriate.

When necessary, materials are tested in the on-site laboratory to determine their hazard characteristics (flammable, corrosive, reactive, etc.) and to ensure that only compatible types of waste are consolidated or stored together.

The handling procedures described above would be continued at the proposed EH&S Expansion facility, and all hazardous materials would continue to be handled and stored in accordance with UC policy and applicable regulations. The facility would be designed with safety features to handle current and future UCR hazardous materials and wastes safely. Inside the facility, chemical, radioactive, and medical waste areas would provide for secondary containment of chemicals in the event of spills and, in addition to fume hoods, would be equipped with chemical handling snorkels, compressed air systems, autoclaves, and other sterilization equipment.

Both bulking and testing would continue to be performed indoors and within fume hoods to reduce the potential for worker exposure and contain any air emissions. The fume hoods would be vented above the building roof. The expanded facility would have additional space and equipment to perform bulking operations, allowing for more efficient storage and transport and reducing the need for storage space for the additional amount of waste from future campus growth. Expanded laboratory space would be used for testing similar to that now being performed.

#### **Access and Security**

Access to the proposed EH&S Expansion facility would be from Linden Street, on the campus side of the facility. The pedestrian entrance for employees and visitors would face Linden Street and would be through a secure entry. The main vehicle entry and exit would be from Linden Street via the secure gate, and all daily campus waste pickup vehicles and periodic deliveries would use this entrance. Only the waste off-haul trucks operated by outside contractors would have access from Watkins Drive; the Watkins Drive gate would be kept locked at all times except during truck entry and exit. These access

control measures would maintain security at the facility and minimize the possibility that unauthorized persons could gain access.

### **Hazardous Materials and Waste Transport**

Hazardous materials collected from the campus laboratories and other facilities are transported to the existing EH&S facility in break-resistant containers with secondary containment such as buckets or carts. These practices would be continued at the proposed EH&S Expansion facility. There are no routine emissions associated with waste collection and transport.

### **Construction**

Construction of the proposed projects, including Parking Lot 27, would not require extensive use of materials that would create a significant hazard. Some examples of construction-related hazardous materials handling include fueling and servicing construction equipment on site and the transport of fuels, lubricating fluids, and solvents. These materials are generally disposed of at non-hazardous Class II and III landfills (along with municipal solid waste).

### **Human Health Risks**

The individuals most at risk due to increased hazardous materials handling at the proposed EH&S Expansion would be staff involved in waste sampling, bulking, and transfer operations and staff and students involved in training activities focused on the appropriate handling, storage, and disposal of hazardous materials. These operations would all occur indoors, and outdoor activities would be limited to daily unloading of small containers of waste collected from around the campus and periodic loading and removal of larger waste containers by truck for disposal off site. As discussed above, indoor waste-handling activities would occur in areas with secondary containment and fume hoods to reduce potential risks related to worker exposure. Outdoor loading operations would also occur in an area with secondary containment using approved handling procedures and personal safety equipment as needed. These features and operational safeguards would maintain risks of exposure to facility workers and visitors at a less than significant level.

Operations involving handling (rather than storage) of materials could result in minor air emissions. Such operations, which would be conducted inside the facility, include collection and laboratory analysis of samples and bulking (consolidation) operations. Laboratory testing involves very small quantities (a few milliliters or milligrams of material) and is performed by trained staff using mandatory safety procedures. Bulking involves the procedure by which the contents of small containers of waste are transferred to larger containers for storage and eventual removal. At the EH&S Expansion, as with the



existing facility, bulking of liquid wastes is performed using a pump rather than pouring, minimizing potential air emissions. Bulking is performed approximately once per week, and would be performed more often but still less than daily under long-term conditions. Both of these operations are and would continue to be performed within fume hoods to collect any emissions. The fume hoods would be vented to the building exterior through high-speed exhaust fans to provide rapid dispersal of any trace amounts of emissions. The fume hoods would be included in the campus general SCAQMD permit for fume hood operation. Under this permit, engineering controls are not required because the emissions would be very low. In addition, the project design process includes a wind study that will take into account the location of sensitive receptors and concentration of airborne contaminants from building exhaust stacks to determine the placement and height of the stacks. Because the potential emissions from hazardous materials handling would be intermittent and minimal, they would pose minimal risk to employees, visitors, or nearby residents, and impacts would be less than significant.

The proposed EH&S Expansion building would be at least 230 feet from the nearest off-site receptors. Because the facility's routine operations are heavily regulated, off-site hazardous materials exposure would only reasonably occur through limited circumstances such as accident during transport or use. The risks associated with the transport of hazardous materials, both to and from campus and internally, are addressed under **Impact 4.4-3**. Potential impacts resulting from the operational emissions of toxic air contaminants from the emergency generator are addressed under **Impact 4.3-5** in **Section 4.3, Air Quality** of this EIR.

#### **Campus Programs and Practices**

The Campus will continue to implement the following existing campus Programs and Practices related to the transport, use, storage, or disposal of hazardous materials.

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.

With continued implementation of this measure, development of the proposed EH&S Expansion project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and this impact would be less than significant.

The proposed Parking Lot 27 project would not involve routine transport, use, or disposal of hazardous materials and would have no impact with respect to this criterion.

*Related Projects*

The related Corporation Yard reorganization project would include demolition of existing buildings, replacement of a warehouse building, and continuation of the current maintenance and support functions. Operations at the reorganized Corporation Yard could also involve use of hazardous materials for building and grounds maintenance, but to a lesser degree than the proposed EH&S Expansion. With proper use and disposal, as outlined above, building maintenance chemicals are not expected to result in hazardous or unhealthful conditions for building occupants. Building demolition would be required to comply with the following Programs and Practices:

- 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 4.7-4                    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 on-site 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.

As discussed above, asbestos surveys of the Mail Services Building and the existing EH&S facility found asbestos in interior flooring and drywall mud. These materials would be required to be removed by a licensed contractor in compliance with applicable regulations before building demolition. Compliance with these regulations and the Programs and Practices described above, which would be included in the related Corporation Yard reorganization project, would reduce impacts related to the potential for encountering hazardous materials during construction to a less than significant level.

The related EH&S buildings reuse project would relocate existing on-campus and off-campus operations (Mail Services and Printing & Reprographics) that use small quantities of hazardous materials. These materials would be stored, handled, and transported in compliance with existing campus policies and State and federal regulations; compliance with these policies and regulations would reduce or avoid the potential to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and this impact would be less than significant.

**Conclusion**

With continued implementation of the PPs and LRDP mitigation measures that are a part of the proposed projects and related projects and continued compliance with federal and State health and safety laws and regulations, the proposed EH&S Expansion, Parking Lot 27, and related projects would not create a significant hazard to the public or the environment through routine transport, use, disposal, or storage of hazardous materials, and this impact would be less than significant.

**Mitigation Measures:** No mitigation is required.

**Impact 4.4-2**                    **Implementation of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and related projects 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. The impact would be less than significant.**

*Proposed Projects*

**Construction Impacts**

An existing high-pressure jet fuel line runs along the north side of Watkins Drive, approximately 100 to 150 feet north of the project site. The line is a 14-mile-long, 6-inch-diameter welded steel pipe that transports jet fuel from Colton to March Joint Air Reserve Base (UCR 2011b; Kinder Morgan 2011). Potential hazards associated with such pipelines typically include the risk of accidental damage or rupture during construction activities, especially excavation. Construction of the proposed projects would not occur within or immediately adjacent to the alignment of the fuel pipeline, and would be separated by the width of Watkins Drive at a minimum. Furthermore, project contractors would be required by State law to contact Underground Service Alert, which, in turn, is obligated to contact the pipeline operator to identify and delineate the exact location of the pipeline. In addition, pipeline operator coordination may also include requirements for hand excavation and/or field oversight by a Kinder Morgan representative where warranted to protect the pipeline. These safeguards and the distance between project construction activities and the fuel pipeline would avoid potential conflicts between project construction, including excavation, and the pipeline. Construction impacts related to upset and accident conditions for the pipeline would be less than significant.

**Operational Impacts**

With projected campus growth, the proposed EH&S Expansion, which includes relevant LRDP PSs and PPs, would handle and store an increased amount of hazardous waste compared to the existing facility, and there would be a corresponding increase in the potential for accidental spills or releases. The location of the proposed EH&S Expansion facility in the northeastern portion of the campus would change the pattern in which the campus's hazardous materials are transported compared to current conditions and, because wastes would be off-hauled through off-campus areas that include residences, there would be a potential for these receptors to be exposed to hazardous materials in the event of an accidental release.

Continued implementation of PPs 4.7-1 and 4.7-3 described above under **Impact 4.4-1**, would require that existing campus health and safety plans, PPs (or equivalent measures) related to the use, storage, transport, or disposal of hazardous materials and wastes be continued and the amount of hazardous

waste generated be minimized. These measures would help reduce the potential impacts of increased hazardous waste transport associated with buildout of the 2005 LRDP as amended. However, with any use, transport, or storage of hazardous materials or waste, there is the possibility of an accident or natural disaster that could cause an accidental release of hazardous materials or wastes. The following discussion focuses on the nature and magnitude of risks associated with the accidental release of hazardous materials typically used on campus and that would be used or stored at the proposed EH&S Expansion or transported to and from the facility.

### **Hazardous Materials Handling**

Hazardous materials handling would present a slightly greater risk of accident than hazardous materials storage. However, for those employees and students that work with hazardous materials, such as facility personnel and persons taking training classes, the amount of hazardous materials that are handled at any one time is relatively small, minimizing the potential consequences of an accident during handling. This would be true for the proposed EH&S Expansion as well. Further, UCR would continue to comply with federal and State laws and existing campus Programs and Practices, and procedures to eliminate or reduce the consequence of hazardous materials accidents. For example, staff who work around hazardous materials or wastes would continue to wear appropriate protective equipment and safety equipment would be available in all areas where hazardous materials are used. In addition, all persons who handle hazardous waste on campus, including at the proposed EH&S Expansion facility, would be required to attend hazardous waste training to meet annual requirements.

All hazardous waste handling operations, such as bulking and testing, would take place indoors, and any accidental release during such operations would be contained within the facility. The largest quantities of waste handled would be limited to a few 55-gallon drums; most wastes would be present in much smaller quantities, from less than an ounce to a few gallons. Potentially explosive compounds would continue to be stored in a special reinforced container, which would be relocated from the existing EH&S facility to a location adjacent to the facility within the secure Corporation Yard. The proposed facility would not store very large quantities of hazardous wastes that could cause industrial-scale accidents such as the release of toxic gases or explosions that could affect off-site locations.

The only operations that could cause an accidental release outdoors would be loading and unloading of waste containers at the loading dock. As described above, wastes are transported in sealed containers with secondary containment, minimizing the risk of releases. The loading dock would have a secondary containment system that would prevent any materials that might be spilled during loading and unloading from reaching the storm drain system. Furthermore, any such releases would be limited because of the small amounts that EH&S staff brings to the site on a daily basis.

### **Hazardous Materials Storage**

The proposed EH&S Expansion would include a 90-Day Storage room that has been designed pursuant to California Building Code requirements to safely accommodate materials that present a moderate explosion hazard (B-2), high fire or physical hazard (B-3), or health hazards (B-7). The expanded storage space for holding hazardous materials at the proposed EH&S Expansion has also been designed pursuant to the state building code requirements and would be constructed in a manner that minimizes the potential for an accidental release to the environment. All hazardous waste would be stored indoors, with most wastes within the EH&S Expansion building and potentially explosive or radioactive wastes within specialized containers adjacent to the building. Safety measures would include physical segregation of different waste types, secondary containment, and maintenance of adequate space for access and for emergency response in the event of a spill or accidental release. The required safeguards would reduce the risk of accidental release of hazardous materials or wastes to the environment during operation of the proposed EH&S Expansion. Compliance with all applicable federal and State laws and existing campus Programs and Practices, and procedures (as required by PP 4.7-1) related to the storage of hazardous materials would continue to be implemented to maximize containment and to provide for prompt and effective clean-up if an accidental release occurs.

### **Natural Disasters**

Because the proposed EH&S Expansion project would involve hazardous materials and waste handling and storage, there is a potential for a natural disaster such as an earthquake to cause a release of hazardous materials. As described in the Initial Study prepared for the proposed projects (p. 41), the project site is not located within an Earthquake Fault Zone. However, the project site could be subject to seismically induced ground shaking, and the proposed EH&S Expansion project would be required to implement PSs and PPs that would reduce seismic risks. The Initial Study found that seismic-related impacts would be less than significant. For the reasons discussed above, any releases that may occur as a result of an earthquake or other disaster would be limited in quantity and would be contained within secondary containment systems and within the building.

### **On-Campus Transportation of Hazardous Waste**

In addition to transport of hazardous materials to and from campus, the transport of hazardous materials also occurs among campus facilities. On-campus collection and transportation of hazardous wastes is performed by EH&S staff. All EH&S materials management vehicles are supplied with cleanup materials to handle spills and EH&S is not permitted to transport hazardous materials off campus or on city streets. To reduce the likelihood and severity of accidents during on-campus transit, all applicable federal and

State laws and campus PPs, as described in **Subsection 4.4.3** above, would continue to be implemented. These laws, regulations, PPs, and procedures include training regarding the handling of hazardous wastes, as well as fully developed emergency response programs as articulated in the Business Plan and Campus Emergency Response Plan.

EH&S picks up hazardous materials from locations on the campus approximately six times a day and transports them to the existing EH&S facility where, as described above, they are stored for a maximum of 90 days before removal from the facility. These pickups would continue under the proposed project, with waste transported to the proposed EH&S Expansion facility instead. As with the existing facility, accidents could occur as these materials are moved about the campus. However, consistent with current practice, hazardous materials transported between UCR facilities would be carried in break-resistant containers with secondary containment such as buckets or carts. The consequences of spills as a result of a fall or dropping a container would depend on whether the hazardous material was released, the specific hazards associated with the material, the facility design, and the availability of emergency response equipment. To reduce the likelihood and severity of accidents during on-campus transit, all applicable federal and State laws, existing campus PPs, and procedures related to the transportation or cleanup of hazardous materials (in the event of an accidental release) would continue to be implemented. These laws, regulations, PPs, and procedures include staff training regarding the handling of hazardous wastes, as well as fully developed emergency response programs as articulated in the Business Plan and Campus Emergency Response Plan. All EH&S materials management vehicles are supplied with cleanup materials to handle spills occurring during transit on campus. EH&S vehicles are not permitted to transport hazardous materials off campus or travel on city streets, although they are allowed to cross a city street. EH&S would continue to pick up hazardous materials from campus locations and consolidate them at the proposed EH&S Expansion for temporary storage and off-haul, and would continue to comply with all applicable federal and State laws and campus PPs related to transport of hazardous materials.

#### **Off-Campus Transportation of Hazardous Wastes**

The transportation of hazardous materials can result in accidental spills, leaks, toxic releases, fire, or explosion. However, transport of hazardous materials to and from the campus is handled by licensed vendors who are required by law to follow all USDOT and CHP hazardous materials transportation regulations. UCR contracts with licensed hazardous waste transporters to remove all hazardous wastes generated by the campus for treatment or disposal at licensed, off-site hazardous waste facilities. State and federal agencies, including the California Highway Patrol, Caltrans, and the U.S. Department of Transportation, conduct regular inspections of licensed waste transporters to ensure that they comply

with regulatory requirements that range from the design of vehicles used to transport wastes to the procedures to be followed in case of spills or leaks during transit.

Under current conditions, campus hazardous wastes are temporarily stored at the existing EH&S facility and then hauled off campus by licensed vendors for reuse, recycling, and disposal. UCR currently ships hazardous chemical waste for disposal approximately every 60 days on average (six times a year), biohazardous waste once a month, and radioactive waste two times in a year. Therefore, hazardous waste shipments typically occur on an infrequent basis, barring unusual circumstances such as laboratory demolition. While the Campus will continue to implement its waste minimization program to reduce the volume of waste requiring off-site disposal, with campus growth the total amount of hazardous waste generated by the campus could potentially increase four-fold by 2020. However, the frequency at which hazardous waste is shipped off campus is not expected to increase proportionally. As discussed under **Impact 4.4-1** above, the new facility would allow for increased bulking operations and more efficient materials storage, thus reducing the amount of storage or transport space needed to handle campus wastes. **Table 4.4-3, Existing and Projected Hazardous Waste Off-Haul**, presents the projected increase in hazardous waste off-haul trips between existing conditions and 2020-21.

**Table 4.4-3  
Existing and Projected Hazardous Waste Off-Haul**

Type of Waste	Frequency of Off-haul (2010–11)	Frequency of Off-haul (2020–21)
Medical Waste Vendor Pick-up	1/month	1/month
Universal & E-waste Waste Vendor Pick-up	6/year	6-8/year
Hazardous Waste Vendor Pick-up	6/year	6-8/year
Radioactive Waste Vendor Pick-up	2/year	2-3/year
<b>Total Off-campus Trips</b>	26/year	26-31/year

*Source: UC Riverside – EH&S 2011*

As is currently the practice, manifests would be completed and maintained by EH&S for all hazardous waste that is transported in connection with campus activities. As previously discussed, Section 31303 of the California Vehicle Code requires that when hazardous materials are transported on state or interstate highways, the highway(s) that offer the shortest overall transit time possible shall be used, and as required by federal and State laws, all other all hazardous materials transportation regulations must be followed, such as USDOT regulations for packaging and handling hazardous materials to prevent accidental spills of hazardous materials during transit. Compliance with applicable federal and State laws



related to the transportation of hazardous materials would continue to reduce the likelihood and severity of accidents during transport and minimize impacts on receptors along the truck route.

The planned truck route for removal of hazardous wastes by licensed contractors would require them to exit the EH&S yard onto Watkins Drive and proceed northwest on Watkins Drive to Blaine Street, then turn left onto Blaine Street and proceed west to I-215/SR-60. This route is the shortest available route to the freeway and follows major streets. To ensure that the trucks take this route and avoid intrusion into adjoining neighborhoods, and further reduce this less than significant impact, **Mitigation Measure 4.4-2** would be incorporated into the project.

### **Emergency Response**

The UCR Business Plan provides information about the location of campus buildings in which hazardous materials are handled, provides site maps indicating the location of hazardous materials and wastes, assigns a particular chemical classification to each laboratory/shop, and includes emergency procedures to follow in the event of an accidental release of hazardous materials. The information about the proposed EH&S Expansion facility would be provided to the RFD along with periodic updates on any inventory changes at the facility and at other campus facilities. RFD would continue to have real-time electronic access to the campus chemical inventory.

Major hazardous materials accidents are infrequent and additional emergency response capabilities are not anticipated to be necessary to respond to the potential incremental increase in the number of incidents that could result from the proposed EH&S Expansion. In addition, the following Programs and Practices and 2005 LRDP MMs are included in and a part of the proposed EH&S Expansion project:

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.

(This is identical to Transportation and Traffic PP 4.14-5.)

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

(This is identical to Transportation and Traffic PP 4.14-8.)

- 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.
- MM 4.7-7(b) The campus Emergency Operations Plan shall be reviewed on an annual basis and updated as appropriate to account for new on-campus development, which may require changes to the plan, such as revised locations for Campus Evacuation Zones.

Implementation of these measures would minimize risks related to accidents and upset conditions and reduce potential impacts to a less than significant level.

The proposed Parking Lot 27 project would not involve any use or handling of hazardous materials or hazardous wastes. It would therefore 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 would have no impact with respect to this criterion.

#### *Related Projects*

The related projects, which include relevant 2005 LRDP PSs and PPs, would not involve any increase in the quantities of hazardous materials or hazardous wastes on campus, nor would they involve any change in the handling or storage conditions of the small amounts of hazardous materials currently used at the Corporation Yard. Construction impacts associated with the existing jet fuel pipeline would be the same for the related Corporation Yard project as for the proposed projects and would be less than significant. The related EH&S buildings re-use would not be located near the pipeline and no impact would occur. The related projects would therefore 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 would have no impact with respect to this criterion.

#### *Conclusion*

With continued implementation of the PPs and LRDP MMs that are a part of the proposed EH&S Expansion facility and continued compliance with federal and State health and safety laws and regulations, the proposed EH&S Expansion, Parking Lot 27, and related projects 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 impact would be less than significant.

**Mitigation Measures:** No mitigation is required. However, to further reduce the less than significant impact from off-haul of hazardous wastes, the following mitigation measure will be imposed on the proposed EH&S Expansion project.

MM 4.4-2 EH&S staff shall provide all drivers removing hazardous materials or hazardous waste from the EH&S Expansion facility with printed directions clearly indicating the mandated haul route, exiting the EH&S Expansion facility left onto Watkins Drive and proceeding northwest to Blaine Street, then west on Blaine to the I-215/SR-60 freeway entrance ramps.

**Impact 4.4-3 Implementation of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and the related projects could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. This impact would be less than significant.**

*Proposed Projects*

The UCR Child Development Center, which includes a preschool, kindergarten, and childcare facility, is located approximately 1,200 feet northwest of the proposed EH&S Expansion project site (see **Figure 3.0-3**). The proposed EH&S Expansion facility, which includes relevant LRDP PSs and PPs, would therefore handle hazardous materials and wastes within one-quarter mile of an existing school. However, routine operations (which include testing and bulking) would result in minimal air emissions of toxic air contaminants and, as discussed above under **Impact 4.4-1**, would be contained within the facility. As discussed under **Impacts 4.4-1** and **4.4-2** above, the quantities of materials handled and stored at the proposed facility would be limited, with most wastes present in small quantities ranging from less than an ounce to a few gallons. The largest containers would be a few 55-gallon drums. The types and quantities of hazardous materials stored would not be large enough to cause a major explosion or airborne release that could affect off-site facilities or reach the Child Development Center.

Furthermore, project operations would comply with federal and State regulations pertaining to hazardous wastes, as well as the procedures required by PP 4.7-1, which would continue the implementation of current (or equivalent) health and safety plans, programs, and practices related to the use, storage, disposal, or transportation of hazardous materials. These operating procedures are used at the existing facility, which has a safety record that includes no accidental releases, hazardous-materials-related injuries, or transport accidents. The proposed EH&S Expansion facility would operate under the same regulatory and policy requirements. Continued adherence to these regulations and policies, which

require proper handling techniques, disposal practices, and clean-up procedures, would minimize both emissions and the potential for accidental releases. In addition, the proposed facility would include improved waste handling facilities and safety features, and any accidental release that could occur would be contained within the facility. The operating procedures and facility safety features described above would ensure that risks associated with hazardous emissions or materials would be eliminated or reduced. Therefore, the project would not pose a significant human health risk to Child Development Center related to emissions of hazardous substances or handling of hazardous or acutely hazardous materials, substances, or wastes, and impacts related to EH&S Expansion facility operations would be less than significant.

As discussed under **Impact 4.4-2** above, compliance with hazardous materials transportation regulations and campus emergency response planning and procedures would minimize the potential for accidental releases in the vicinity of the Child Development Center. This impact would be less than significant.

Parking Lot 27 would not involve handling of hazardous materials or generation of hazardous waste and therefore would result in no impact with respect to this criterion.

#### *Related Projects*

The Corporation Yard currently handles nearly all of the hazardous materials the campus receives, and would continue to do so. Development of the related Corporation Yard reorganization project would also comply with federal and State regulations pertaining to hazardous wastes, as well as with existing campus Programs and Practices, such as PP 4.7-1, which are discussed above. With implementation of these measures, the impact would be less than significant. The other related project, relocation of Mail Services and Printing & Reprographics to the existing EH&S facility, would not handle hazardous materials and generate hazardous waste within one-quarter mile of an existing or proposed school.

#### **4.4.4.6 Cumulative Impacts and Mitigation Measures**

The geographic context for the analysis of cumulative impacts from hazardous materials use, transport, and disposal is the City of Riverside. The analysis accounts for all anticipated cumulative growth within this geographic area, as represented by full implementation of the City of Riverside General Plan.

**Impact 4.4-3**

**Cumulative development, including the EH&S Expansion, Parking Lot 27 (proposed projects), and the related projects, would not expose the public to significant hazards due to the transport, use, disposal, or storage of hazardous materials (including chemical and radioactive waste) under routine and accident or upset conditions or due to the project's location within one-quarter mile of a school. The impact would be less than significant.**

As described in **Impacts 4.4-1** and **4.4-2** above, the project-related impacts from the routine use, transport, or disposal of hazardous materials, or as a result of accidental release of hazardous materials, would be less than significant. While the UCR campus will continue to use varying amounts and types of hazardous materials (including chemical and bio-hazardous materials) in day-to-day activities and operations, the Campus will continue to comply with all applicable laws and regulations concerning the use, storage, or transportation of hazardous materials and exposure to such materials, as well as with existing Programs and Practices and LRDP mitigation measures to reduce potential impacts of the proposed projects and related projects.

Potential cumulative hazard-related impacts of the proposed projects and related projects could occur due to the projects' location adjacent to an existing rail line and a high-pressure jet fuel line that run along the north side of Watkins Drive. Two cumulative projects are planned for the immediate vicinity of the proposed projects and related projects: the approved Glen Mor 2 Student Apartments (GM2), located on campus about 500 feet south of the proposed Parking Lot 27, and the Perris Valley Line project, which would involve the existing rail line across Watkins Drive.

The GM2 project is a student residential development that will be similar in scale and intensity to existing campus residential uses; the EIR prepared for that project found that it would not have significant impacts related to hazards, nor would it contribute to cumulative hazard-related impacts (UCR 2011b).

The existing jet fuel line is belowground and is located between 25 and 75 lateral feet from the rail line, depending on location (ZETA-TECH 2011). As of 1989, the pipeline carried approximately 1.7 million gallons of fuel annually. It is normally charged approximately once a week to deliver fuel to March Joint Air Reserve Base, and is empty the remainder of the time. According to Kinder Morgan, maintenance of the line includes visual inspections on the ground and from the air as well as internal inspections with computerized equipment that measures the thickness of the pipe's wall. Evidence of damage would be followed up by open exploration to repair or replace the damaged section of pipe (UCR 2011b).

According to the Pipeline and Hazardous Materials Safety Administration (PMHSA), approximately 400,000 miles of onshore and offshore pipelines carrying petroleum and natural gas exist throughout the nation (PMHSA 2011a). A 2004 pipeline safety report prepared by the Transportation Research Board (TRB) found that the leading cause of pipeline failure is outside force damage (by excavation, natural causes, or vandalism), with external corrosion due to imperfections in the pipe coating and internal corrosion also major contributing factors (TRB 2004). Data from the PMHSA show that pipeline incidents resulted in an average of about 19 fatalities and 79 injuries per year from 1991 to 2010 (PMHSA 2011b). (By comparison, national statistics for loss of life from auto, rail, air, and water travel indicate fatalities on the order of many tens of thousands annually.) The TRB report found that the national average death rate for fuel pipeline failures in 2000 was 0.002 deaths per billion ton-miles; this is significantly less than for other forms of bulk transportation, such as trucking (4.229 deaths per billion ton-miles) or rail transport (0.606 deaths per billion ton-miles) and is lower than that of natural gas pipelines (0.091 deaths per billion ton-miles) (TRB 2004). Based on the information above, a pipeline accident at any given location is very unlikely, but because the Kinder Morgan jet fuel pipeline is located in an area that is already densely populated, there is some risk to existing residents should an accident occur. However, the proposed projects and related projects, together with the cumulative projects (GM2 and the Perris Valley Line) will not alter the factors contributing to the risk of potential failure of the pipeline. Given the information above regarding the extent of pipeline networks and the number of associated accidents, potential failure of the pipeline cannot be characterized as reasonably foreseeable.

The Riverside County Transportation Commission's (RCTC) Perris Valley Line project would add approximately 12 passenger trains daily to an existing, active rail line, and would involve minor upgrades to existing equipment and construction of sound walls at certain locations. The Perris Valley Line project would not involve use of substantial quantities of hazardous materials, although the increased number of trains would have a corresponding increase in the number of diesel engines with associated fuel tanks moving along the line. However, as concluded in the EIR for that project, it would not result in significant impacts related to hazards and hazardous materials or contribute to cumulative hazard-related impacts (RCTC 2011). In addition, during the environmental review for the Perris Valley Line project, the RCTC, in response to concerns raised about the proximity of the rail line to schools and to the existing Kinder Morgan jet fuel pipeline, commissioned a technical study to evaluate potential safety and hazard impacts associated with the pipeline. That report specifically addressed risks to two schools in the City of Riverside, Highland Elementary School, located about 0.5 mile northwest of the proposed project site, and Hyatt Elementary School, located about 1 mile southeast of the proposed project site. The report found that the increased risk of derailment and corresponding risk to school occupants for the Highland Elementary School location, where the rail line configuration is similar to that near the proposed projects, was very low. The average derailment probability under existing conditions is

0.000672 per million gross ton-miles; this is equivalent to 1 derailment on average every 1,500 years. The incremental increase in risk from the Perris Valley Line at this location was found to be 0.00032 per million gross ton-miles or 1 derailment on average every 3,000 years. The existing and incremental risks for the Hyatt Elementary School were substantially lower. These risk levels would not represent a significant safety impact (ZETA-TECH 2011). The two schools for which risks were evaluated are located adjacent to the existing pipeline and rail line, and risks from potential derailment at the proposed project site and related Corporation Yard project site are expected to be comparable to the very low risks at the two schools. Therefore, the potential for derailment to occur and to affect the proposed projects, or for derailment to affect the pipeline and create combined impacts from derailment and pipeline failure, is very low. As discussed above under **Impact 4.4-2**, the proposed projects would have a low potential to affect nearby residents through releases due to accident or upset. For these reasons, the proposed projects and the Perris Valley Line project would not, taken together, create a potentially increased risk to residents or other persons nearby.

Cumulative impacts due to accident or upset conditions related to development near the existing pipeline and the Perris Valley Line project would be less than significant, and the contribution of the proposed projects and related projects would not be considerable.

Future growth in the Riverside area would likely result in an incremental increase in the amount of hazardous materials used, treated, transported, and disposed in the project site vicinity. However, all future growth will comply with federal and State hazardous materials statutes and regulations, as enforced by appropriate regulatory agencies; compliance would reduce potential cumulative impacts to a less than significant level. Therefore the proposed projects and related projects, in conjunction with past, present and reasonably foreseeable projects in the vicinity would not result in a significant cumulative impact related to hazardous materials transport, use, disposal and storage under both routine and upset conditions.

**Mitigation Measures:** No mitigation is required.

## 4.5 HYDROLOGY AND WATER QUALITY

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### 4.5.1 INTRODUCTION

This section describes the existing hydrology and water quality conditions on the UCR campus and analyzes the potential for implementation of the proposed Environmental Health & Safety (EH&S) Expansion, Parking Lot 27 (proposed projects), and related Corporation Yard reorganization and existing EH&S buildings re-use (related projects) to violate any water quality standards or waste discharge requirements or provide substantial additional sources of polluted runoff.

The information in this section is based on information provided by the Santa Ana River Basin Water Quality Control Plan, the Federal Emergency Management Agency, and previous environmental documentation prepared for the UCR campus.

In response to the Notice of Preparation (NOP) issued for this EIR, a commenter stated that the EIR should examine the potential for impacts to water quality in the event of an accidental spill of hazardous materials that could reach the municipal storm drain system. This issue is addressed in the impacts analysis section below.

### 4.5.2 EXISTING CONDITIONS

#### 4.5.2.1 Regional Hydrology

##### *Surface Water*

The UCR campus is located within the Santa Ana River watershed, a drainage area of approximately 2,650 square miles. The Santa Ana River begins as a series of tributary streams in the San Bernardino Mountains and flows over 100 miles southwesterly, discharging into the Pacific Ocean in Huntington Beach. Surface and groundwater from the Upper Santa Ana River basin collect behind the Prado Dam, at the head of the Santa Ana River Canyon, and then continue to the Lower Santa Ana River basin to the Pacific Ocean (UCR 2005 and 2011a).

Natural flows in the river and tributaries are supplemented by water imported from the State Water Project and the Colorado River and discharge from publicly owned treatment works (POTWs). The use of imported water and discharge from POTWs has increased as a result of increased population in the Upper Santa Ana River basin. Between 1970 and 1990, the total average volume rose from less than 50,000 to over 130,000 acre-feet per year (afy), as measured at Prado Dam. Base flow is expected to rise to 230,000 afy by 2020, a projected increase of 77 percent above 1990 levels (UCR 2005 and 2011a).



### *Groundwater*

The Riverside area is located within the Upper Santa Ana Valley Groundwater Basin. The UCR campus is located near the southeastern edge of the Riverside-Arlington subbasin, which is bound by impermeable rocks of Box Springs Mountains on the southeast, Arlington Mountain on the south, La Sierra Heights and Mount Rubidoux on the northwest, and the Jurupa Mountains on the north. The northeast boundary of this subbasin is formed by the Rialto-Colton Fault, and a portion of the northern boundary is a groundwater divide beneath the City of Bloomington. The Santa Ana River flows over the northern portion of the subbasin. Groundwater in the subbasin is replenished by infiltration from Santa Ana River flow, underflow past the Rialto-Colton Fault, intermittent underflow from the Chino groundwater subbasin, return irrigation flow, and deep percolation of precipitation (UCR 2005 and 2011a).

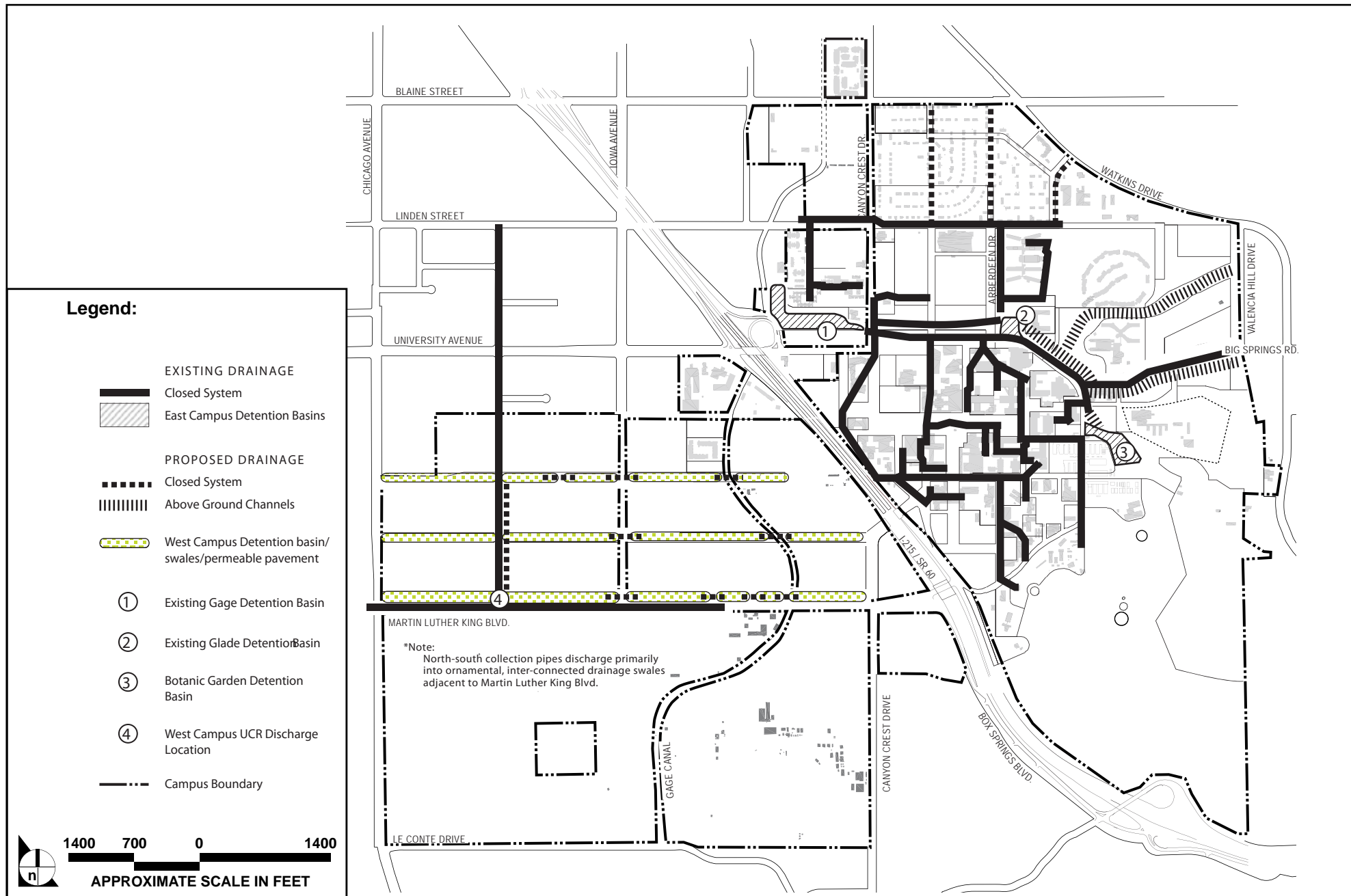
Groundwater may also be contained in isolated perched water tables that are separated from the regional aquifer by unsaturated rock. Based on historical well data in the campus vicinity, it is estimated that groundwater depths vary throughout the campus, from approximately 60 feet below the ground surface at the base of the Box Springs Mountains to 200 feet below ground surface in the western portion of the campus (UCR 2005 and 2011a).

Groundwater in the regional aquifer is pumped by local water agencies, including the City of Riverside, and used for domestic and agricultural purposes.

The Soil Conservation Service classifies soils into four classes, based on their relative permeability. Class A soil types represent the most permeable soil types, Classes B and C are intermediate, and Class D soils are the least permeable. In general, the East Campus is underlain with Class C and D soils, which have intermediate to low permeability, and the West Campus is underlain with Class C soils, with intermediate permeability. Therefore, the campus is not considered a significant regional groundwater recharge area (UCR 2005 and 2011a).

#### **4.5.2.2 Campus Hydrology**

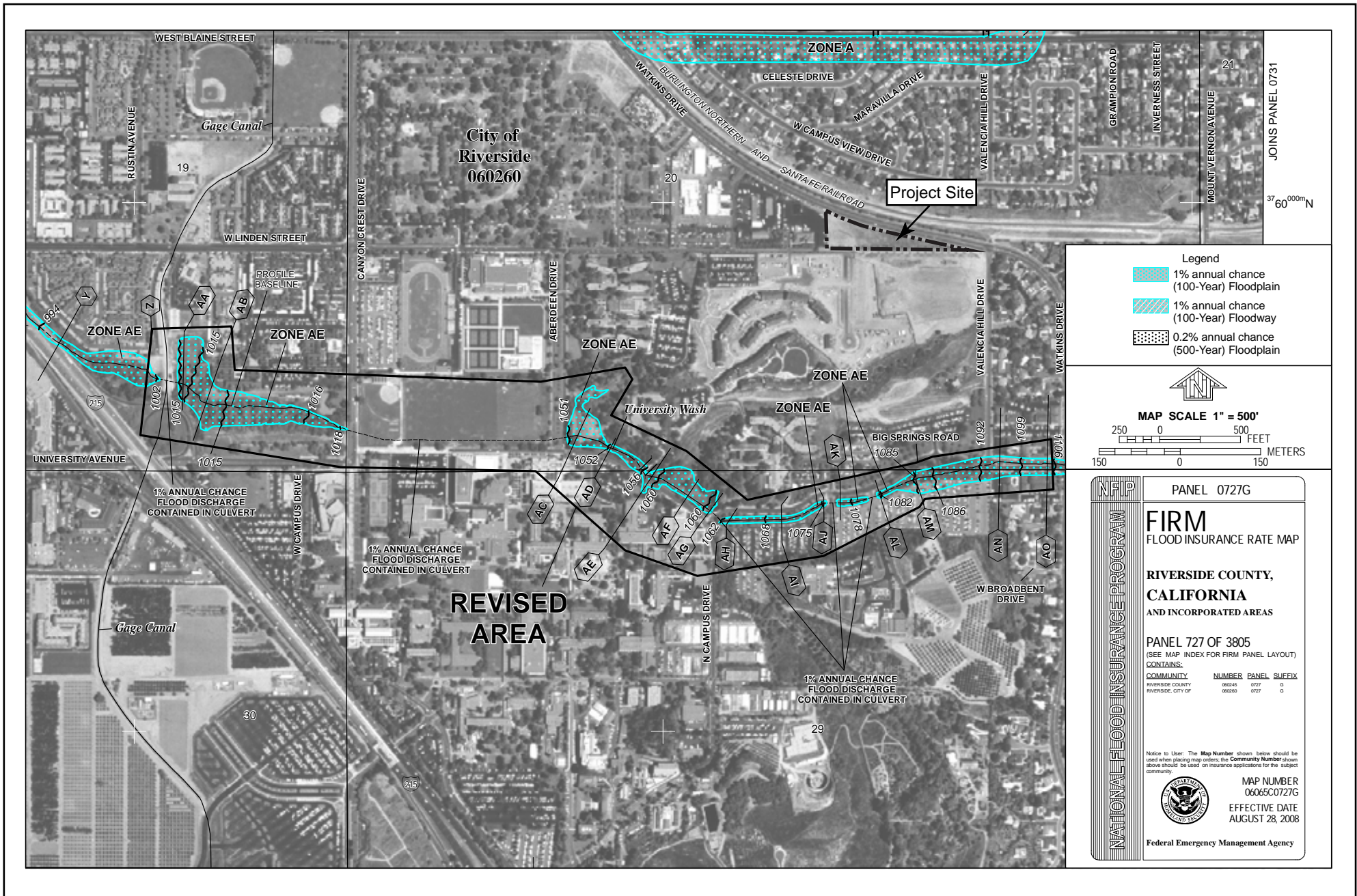
UCR is located on westward sloping alluvial deposits at the base of the Box Springs Mountains in the Upper Santa Ana River watershed. The campus is located within two sub-watersheds, generally divided by the I-215/SR-60 freeway. Most of the East Campus drains to the University Arroyo watershed, while portions of the West Campus drain to the Box Springs Arroyo watershed. Campus arroyos and major storm drainages are shown in **Figure 4.5-1, Major Storm Drainages on Campus**, and areas subject to 100-year flooding are shown in **Figure 4.5-2, Federal Emergency Management Agency Map**. The proposed project sites are located on the East Campus; the hydrology of this area is summarized below.



SOURCE: UCR 2005 LRDP Amendment 2 – 2011

FIGURE 4.5-1

Major Storm Drainages on Campus



SOURCE: FEMA - 2010

FIGURE 4.5-2

Federal Emergency Management Agency Map

### *East Campus*

The majority of the East Campus, including the project site, is located within the University Arroyo watershed (see **Figure 4.5-1**). The University Arroyo watershed comprises an area of approximately 2,294 acres, with most of that area located east of the campus, and includes a portion of the Box Springs Mountains, which rise to an elevation of approximately 2,800 feet above mean sea level (1,700 feet above the elevation of the main campus) within 2 miles east of campus. Steep canyon tributaries from the mountains discharge surface runoff onto broad alluvial fans toward a confluence at Islander Park east of Watkins Drive. Surface runoff then flows westward towards UCR along Big Springs Road. The entire watershed drains through the UCR campus. Off-site flows enter the campus at three locations to the southeast of the project site, including a culvert under Valencia Hill Drive, a drop-structure for surface flows to go into a 72-inch line within Big Springs Road at Valencia Hill Drive south of the project site, and a drainage course that enters the UCR Botanic Gardens near Watkins Drive and Frost Court. Excess surface flows from the Big Springs Road/Valencia Hill Drive area are directed into the aboveground swale that runs along the south side of Big Springs Road. Stormwater flow follows the topography of the campus and is generally northeast to southwest or east to west across the East Campus.

Beginning in 2005, in order to address long-standing local flooding issues, the Campus constructed integrated stormwater management facilities, the University Arroyo Flood Control and Enhancement (FCE) project, for the University Arroyo watershed. The University Arroyo FCE system is a network of open channels, basins, and buried pipes and culverts. The system receives all upstream tributary flows at the campus boundary, moderates peak flows, and conveys both flows from off site and campus stormwater discharges to its downstream terminus, the Gage Basin at University Avenue and Canyon Crest Drive. FCE components include buried storm drains and a surface channel that follows Big Springs Road and Campus Drive, a basin and storm drain that collect flows from the Botanic Garden tributary area, and the Gage Basin. From the Gage Basin, discharges pass through the municipal storm drain system and then to the Santa Ana River (UCR 2011a). **Figure 4.5-1** shows the University Arroyo, detention basins, and underground drainage pipes within the campus.

The University Arroyo has three on-campus tributaries, as shown on **Figure 4.5-1**: (1) the Great Glen Arroyo, which enters the campus west of Valencia Hill Drive and runs between the Pentland Hills and Lothian Residence Halls; (2) the Botanic Gardens Arroyo, which has two minor tributary channels and traverses the Botanic Garden, and then runs northwest towards East Campus Drive; and (3) a small unnamed arroyo, which parallels East Campus Drive into the Botanic Garden tributary just east of Parking Lot 10. These features are located south and southeast of the EH&S Expansion and Lot 27 project site. Along North Campus Drive, the University Arroyo includes two shallow detention basins, designed to retain stormwater during large events. The eastern basin (east of the access road to the Veitch Student

Center and Parking Lot 15) is undeveloped. The westernmost basin (south of the Aberdeen-Inverness Residence Halls), known as the Glade, is landscaped with a lawn and surrounded by cultivated shrubs and trees.

The University Arroyo FCE project was designed to convey discharge volumes for a 100-year storm based on buildout conditions within the watershed and to control peak discharges to avoid exceeding the capacity of the receiving City storm drain (UCR 2011a).

***Project Site***

Stormwater flows on the EH&S Expansion and Parking Lot 27 project site currently flow overland by sheet flow to Linden Street and then westward into a culvert located on Linden Street west of the Corporation Yard. From there, flows are directed through culverts to the Glade detention basin.

**4.5.2.3 Groundwater Quality**

As noted above, the Riverside area is located within the Upper Santa Ana Valley Groundwater Basin, and the UCR campus is located near the southeastern edge of the Riverside-Arlington subbasin. Groundwater quality in the Riverside-Arlington subbasin has an average total dissolved solid content of 463 milligrams per liter (mg/L) with a range of 210 to 889 mg/L (State of California 2003). High total dissolved solids (TDS) levels are commonly referred to as “hard” water, which contributes to the formation of calcium and other deposits on shower walls and other surfaces regularly exposed to water. High TDS levels begin to interfere with the use of water between 500 and 1,000 mg/L. At 1,000 mg/L, water is considered brackish and unusable (UCR 2005 and 2011a).

The use of chemicals and solvents in industrial processes and the use of fertilizers, pesticides, and herbicides in agricultural operations have been noted as a source of concern with respect to groundwater quality in the Riverside area. Currently, the City of Riverside extracts groundwater for domestic uses and operates five treatment plants that remove: trichloroethylene (TCE), which is a degreaser/cleaner used in industry; perchlorate, which is a primary ingredient of solid rocket propellants and other industrial applications; and dibromochloropropane (DBCP), which is a banned pesticide previously used on citrus groves. Historic use of fertilizers may also contribute to elevated nitrate levels in groundwater (UCR 2005). Nitrates in groundwater extracted by the City of Riverside have an average nitrate concentration of 25 parts per million (ppm), with a range from 21 ppm to 30 ppm during the year, well below the maximum contaminant level for nitrate of 45 ppm established by the California Department of Health Services (DHS) (City of Riverside 2009).

### 4.5.3 REGULATORY FRAMEWORK

#### 4.5.3.1 Federal

##### *Clean Water Act*

In 1972, the Federal Water Pollution Control Act—also known as and hereafter referred to as the Clean Water Act (CWA)—was amended to require NPDES permits for discharge of pollutants into the “waters of the United States” that include oceans, bays, rivers, streams, lakes, ponds, and wetlands. In addition, the CWA requires the states to adopt water quality standards for water bodies and have those standards approved by the United States Environmental Protection Agency (U.S. EPA). Water quality standards consist of designated beneficial uses—e.g., wildlife habitat, agricultural supply, fishing, etc.—for a particular water body, along with water quality criteria necessary to support those uses. Water quality criteria are prescribed concentrations or levels of constituents—such as lead, suspended sediment, and fecal coliform bacteria—or narrative statements that represent the quality of water that supports a particular use. Because California has not established a complete list of acceptable water quality criteria, the U.S. EPA established numeric water quality criteria for certain toxic constituents in the form of the California Toxics Rule (40 CFR 131.38).

Water bodies not meeting water quality standards are deemed “impaired” and, under CWA Section 303(d), are placed on a list of impaired waters for which a Total Maximum Daily Load (TMDL) must be developed for the impairing pollutant(s). A TMDL is an estimate of the total load of pollutants from point, nonpoint, and natural sources that a water body may receive without exceeding applicable water quality standards (with a “factor of safety” included). Once established, the TMDL is allocated among current and future pollutant sources discharging to the water body.

##### *CWA Permits for Discharge to Surface Waters*

CWA Sections 401 and 402 contain requirements for discharges to surface waters through the NPDES program, administered by the U.S. EPA. In California, State Water Resources Control Board (SWRCB) is authorized by the U.S. EPA to oversee the NPDES program through the RWQCBs (see related discussion under **Porter-Cologne Water Quality Control Act**, below). The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual permits. The permit contains requirements of allowable concentrations of contaminants contained in the discharge.

*General Construction Permit*

Pursuant to CWA Section 402(p), the SWRCB has issued a statewide general NPDES permit for stormwater discharges from construction sites (NPDES No. CAS000002), per California Water Resources Control Board Resolution No. 2001-046.

According to NPDES regulations, discharges of stormwater from construction sites in California with a disturbed area of 1 acre or larger are required either to obtain individual NPDES permits for stormwater discharges or to be covered by the statewide Construction General Permit. Coverage under the Construction General Permit is accomplished by completing and filing a Notice of Intent with the SWRCB. Each applicant under the Construction General Permit must ensure that a Storm Water Pollution Prevention Plan (SWPPP) is prepared prior to grading and is implemented during construction. The primary objective of the SWPPP is to identify, construct, implement, and maintain Best Management Practices (BMPs) to reduce or eliminate pollutants in stormwater discharges and in authorized non-stormwater discharges from the construction site during construction. Permittees are further required to conduct monitoring and reporting to ensure that BMPs are correctly implemented and are effective in controlling the discharge of pollutants.

Effective July 1, 2010, all dischargers are required to obtain coverage under the Construction General Permit Order 2009-0009-DWQ adopted on September 2, 2009. The new Construction General Permit requires the development and implementation of a SWPPP. Section A of the Construction General Permit describes the elements that must be contained in a SWPPP. The SWPPP should contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP must list the BMPs the discharger will use to protect stormwater runoff and the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program, a chemical monitoring program for “non-visible” pollutants to be implemented if there is a failure of BMPs, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

All new projects that are over 1 acre in size and that are not already covered by the current stormwater permit will have to calculate the proper classification of the project as either a Risk Level 1, 2, or 3 project. Risk Level 1 has the least stringent requirements and is not subject to either the Numeric Action Limits (NALs) or Numeric Effluent Limits (NELs) which have been established for pH and turbidity. In contrast, a NAL of 250 nephelometric turbidity units (NTU) and a pH of 6.5-8.5 has been established for Risk Level 2, while NELs of 500 NTU and a pH of 6.0-9.0 have been established for Risk Level 3 projects. In addition, Risk Level 1 projects do not have to prepare a Rain Event Action Plan (REAP) while both Risk Level 2 and

3 projects will have to prepare an REAP, which is applicable to every event where there is a forecast of 50 percent or greater probability of measurable precipitation (0.01 inch or more).

The new permit provides a number of technical appendices, which may be used to calculate the risk level of new projects. One of the main criteria for being classified as presenting a greater risk is whether the project will discharge into a stream segment which has been listed under Section 303(d) as being impaired for sediment or whether the stream is listed as having beneficial uses for cold, spawn, and migratory fish habitats.

Under the new permit, existing and new projects will also have to comply with post-construction water balance requirements which will become applicable in September 2012. Construction General Permit 99-08-DWQ required the SWPPP to include a description of all post-construction BMPs on a site and a maintenance schedule. The new Construction General Permit requires dischargers to replicate the pre-project runoff water balance (defined as the amount of rainfall that ends up as runoff) for the smallest storms up to the 85<sup>th</sup> percentile storm event, or the smallest storm event that generates runoff, whichever is larger. The permit emphasizes runoff reduction through on-site stormwater reuse, interception, evapotranspiration, and infiltration through non-structural controls and conservation design measures (e.g., downspout disconnection, soil quality preservation/enhancement, interceptor trees). The new Construction General Permit also requires dischargers to maintain pre-development drainage densities and times of concentration in order to protect channels and encourages dischargers to implement setbacks to reduce channel slope and velocity changes that can lead to aquatic habitat degradation.

The new permit requires that a SWPPP must be prepared by a Qualified SWPPP Developer, which is defined as someone who is either a Professional Civil Engineer, Professional Geologist or Engineering Geologist, Landscape Architect, Professional Hydrologist, or Certified Professional in Erosion and Sediment Control.

#### ***Municipal Separate Storm Sewer System Permit***

Municipal Separate Storm Water Systems (MS4s) are any conveyance or system of conveyances that are owned or operated by a State or local government entity and are designed for collecting and conveying stormwater that is not part of a Publicly Owned Treatment Works (i.e., not a combined sewer). The 1987 amendments to the CWA directed the U.S. EPA to implement stormwater programs in two phases. Phase I addresses large- and medium-sized MS4 communities with populations of 250,000 or more and 100,000–250,000, respectively. Phase II regulates stormwater discharges associated with small municipal stormwater systems (serving populations less than 100,000). The RWQCBs issue MS4 permits that regulate stormwater discharges. The permits require the permittee to establish controls to the maximum



extent practicable and effectively prohibit non-stormwater discharges to the MS4. The MS4 permits detail requirements for new development and significant redevelopment projects. The UCR Campus has been designated by the SWRCB as a New Non-Traditional Small MS4 Permittee in the Draft Phase II Small MS4 General Permit issued June 7, 2011, revised per Attachment C dated July 8, 2011. The UCR Campus will be subject to Phase II requirements upon adoption of this new Phase II Small MS4 General Permit.

#### 4.5.3.2 State

##### *Porter-Cologne Water Quality Control Act*

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act), which is the State's clean water act, provides the statutory authority for SWRCB and the RWQCBs to regulate water quality and was amended in 1972 to extend the federal CWA authority to these agencies (see **Clean Water Act**, above). The Porter-Cologne Act established the SWRCB and divided the State into nine regions, each overseen by a RWQCB. The SWRCB is the primary State agency responsible for protecting the quality of the State's surface and groundwater supplies, but much of the daily implementation of water quality regulations is carried out by the nine RWQCBs.

The Porter-Cologne Act provides for the development and periodic review of water quality control plans (also known as basin plans). The basin plan for the Santa Ana River Basin designates beneficial uses for the area's surface and groundwater resources and water quality objectives for water bodies in the region.

#### 4.5.3.3 Local

##### *City of Riverside*

The City of Riverside Public Works Department is responsible for directing the planning, designing, construction, and maintenance of all streets, sewers, and storm drains within the City's jurisdiction. The department is also responsible for enforcement of the municipal codes and advance planning for public works related projects. The primary goals of the City Engineering Services are to design for transportation, parking, and drainage facilities and protect private and public improvements from flood damage. This department provides administrative and technical support services; design and construction of the various street, sewer, and storm drain projects undertaken by the City; coordination of the off-site improvements installed by private developers; and long-range planning of Public Works facilities (City of Riverside 2011).

As a State entity, the University of California is not subject to local land use regulations; however, the UCR Campus works with the City of Riverside, as appropriate, to implement drainage improvements and to coordinate efforts related to stormwater quality.

#### 4.5.4 IMPACTS AND MITIGATION MEASURES

##### 4.5.4.1 Significance Criteria

The impacts on hydrology and water quality from the implementation of the proposed projects and related projects would be considered significant if they would exceed the following significance criteria, in accordance with Appendix G of the *State CEQA Guidelines* and the UC CEQA Handbook:

- Violate any water quality standards or waste discharge requirements;
- 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);
- 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;
- 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;
- 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;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- 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; or
- Inundation by seiche, tsunami, or mudflow.

##### 4.5.4.2 CEQA Checklist Items Adequately Addressed in the Initial Study

The analysis in the Initial Study prepared for the proposed projects and related projects and circulated with the NOP concluded that further analysis of the following issues was not required in the EIR.

- 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).

Development associated with the proposed projects would increase demand for potable water, which in turn would increase demand for groundwater. This demand was anticipated in and included in the analysis of the 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR (2011). The proposed projects would be guided by a range of LRDP Planning Strategies (PS), including PS Conservation 5, and would continue existing campus Programs and Practices (PP), such as PP 4.8-2 (a) through (c), which provide measures promoting water conservation. The related projects would not result in an increase in demand for water. For the reasons discussed in the 2005 LRDP Amendment 2 EIR (2011), the provision of water to development on the campus, including land uses associated with the proposed projects, would not require water supplies in excess of existing entitlements and resources or result in the need for new or expanded entitlements.

The proposed EH&S Expansion project and Parking Lot 27 project, as well as the related Corporation Yard reorganization, would cause a small increase in the land area covered by impervious surfaces. The existing EH&S buildings reuse would not cause an increase in impervious surfaces. The UCR campus is located near the southeastern edge of the Riverside-Arlington groundwater sub-basin. The campus is not designated as a groundwater recharge area, nor does the campus serve as a primary source of groundwater recharge within the sub-basin. The soils underlying the East Campus are Class C and D, with low to intermediate permeability. Therefore, the addition of impervious surfaces as a result of the proposed project and related projects would not substantially interfere with groundwater recharge.

For the reasons presented above, development of the proposed projects and related projects would not substantially deplete groundwater supplies such that there could be a net deficit in aquifer volume or a lowering of the local groundwater table level. This is considered a less than significant impact.

- 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.

Some elements of the proposed EH&S Expansion and Parking Lot 27 projects, as well as the Corporation Yard reorganization, could locally alter drainage patterns and expose soils to erosion during construction, which could result in siltation on or off site. However, all construction activities would 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. In addition, the proposed projects and Corporation Yard reorganization would be

required to implement existing campus Programs and Practices, such as PP 4.8-3 (a) through (e), which would limit development in potentially erosive areas, thereby minimizing site erosion; reduce dust; require adherence to BMPs identified in the UCR Stormwater Management Plan; and require an assessment of existing stormwater facilities to handle future flows. Project-related work at the existing EH&S site would be limited to removal of existing storage trailers, and would not alter the existing drainage patterns; there would be no impacts at this location. Therefore, the proposed projects and related projects would not substantially alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on or off site, and this impact would be less than significant.

- 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.

Development of the sites of the EH&S Expansion and Parking Lot 27 projects and the related Corporation Yard reorganization would not increase the extent of impervious surfaces on the campus compared to the amount analyzed in the 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR (2011), as these sites were previously designated for development in the 2005 LRDP (as amended) and thus included in calculations and analysis of stormwater runoff on campus. Reuse of the existing EH&S buildings would not increase the amount of impervious surface on campus. A substantial increase in runoff from the EH&S Expansion, Parking Lot 27, and Corporation Yard reorganization sites is not anticipated, as existing pavement and soil conditions (low to intermediate permeability) currently limit permeability and there is runoff from the sites under existing conditions. Furthermore, according to the 2005 LRDP EIR, flooding is not an issue with the development in this area of the East Campus. Therefore, the proposed projects and related projects would not substantially alter the existing drainage pattern of the campus or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site, and this impact would be less than significant.

- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems.

As discussed above, the project sites were included in calculations and analysis of stormwater runoff on campus. The 2005 LRDP (as amended) identifies design criteria to retain the flows from a 10-year storm event (greater than 287 cubic feet per second) in drainage swales. To handle the anticipated increase in stormwater runoff, the proposed projects would continue to be guided by PP 4.8-3(e), which requires evaluation of and upgrades to stormwater facilities as needed to ensure that runoff does not exceed system capacity, and would adhere to design criteria to retain the flows from a 10-year storm event, as discussed above. Reuse of the existing EH&S site would not increase the amount of impervious surface

on campus. Development of the proposed EH&S Expansion and Parking Lot 27 projects and related projects would not exceed the storm drainage system capacity, and impacts related to this issue would be less than significant.

- Otherwise substantially degrade water quality.

No potential impacts to water quality were identified other than those discussed under **Impacts 4.5-1 and 4.5-2** below.

- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

The proposed projects and related projects would not include housing. The 2005 LRDP EIR assumed that the EH&S Expansion and Parking Lot 27 site and the Corporation Yard and existing EH&S facility would be developed with or remain in Campus Support uses, and did not consider these sites for housing. The 2005 LRDP Amendment 2 also did not consider these sites for housing. Furthermore, the project sites are not located within the area of a 100-year flood hazard zone. Therefore, the proposed projects and related projects would not place housing units within a 100-year flood hazard, and no impact would occur.

- Place within a 100-year flood hazard area structures which would impede or redirect flood flows.

Lands affected by the proposed projects and related projects, including the sites of the EH&S Expansion, Parking Lot 27, the Corporation Yard reorganization, and the existing EH&S facility, are not located within a 100-year flood hazard zone. Thus, the proposed projects and related projects would not place structures within a 100-year flood hazard area, and no impact would occur.

- 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.

The closest dam upstream from the campus is the Seven Oaks Dam, which is located approximately 24 miles upstream from the City of Riverside. Given the distance between the campus and the Santa Ana River (of more than 3 miles), the potential for flooding to occur on lands affected by the proposed projects and related projects or for these sites to be affected by a catastrophic dam failure is remote. In addition, the potential for catastrophic failure of the Santa Ana Pipeline, which is operated by the California State Department of Water Resources and is located north and east of the campus along Watkins Drive at the base of the Box Springs Mountains, to affect campus lands is also considered remote (UCR 2005 and 2011a). The proposed projects and related projects would implement as applicable existing campus Programs and Practices, such as PP 4.8-10, which requires the Campus to implement its Emergency Operations Plan in the event of an emergency. Therefore, the proposed projects and related projects

would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam, and no impact would occur.

- Inundation by seiche, tsunami, or mudflow.

The potential for the sites of the proposed projects and related projects to be affected by a seiche or tsunami is considered extremely remote. In addition, EH&S Expansion, Parking Lot 27, and Corporation Yard reorganization sites are relatively flat and therefore would not be susceptible to mudflows. No change in drainage conditions, excavation, or other earth work would occur at the existing EH&S facility that could increase susceptibility to mudflows. Therefore, the proposed projects and related projects would not result in land uses being inundated by a seiche, tsunami, or mudflow, and no impact would occur.

#### **4.5.4.3 Methodology**

The potential for implementation of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and related projects to violate water quality standards or waste discharge requirements or provide substantial additional sources of polluted runoff was evaluated by comparing anticipated project conditions to those existing at the present time, supplemented by previous environmental reports prepared for the EH&S Expansion and Parking Lot 27 site and floodplain information from environmental documents for nearby UCR projects.

#### **4.5.4.4 Relevant LRDP Mitigation Measures, Planning Strategies, and Programs and Practices**

The 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR (2011) identify a series of PSs and PPs that are relevant to hydrology and water quality and include Mitigation Measures (MM) to reduce impacts of buildout of the 2005 LRDP as amended. These measures are considered part of the proposed projects and related projects for purposes of this analysis. The full list of PSs, PPs, and LRDP MMs is included in **Appendix 1.0** of this EIR, and those relevant to hydrology and water quality for the proposed projects and related projects are provided in each impact discussion below.

#### **4.5.4.5 Project Impacts and Mitigation Measures**

**Impact 4.5-1                      Implementation of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not violate any water quality standards or waste discharge requirements. The impact would be less than significant.**

### *Construction of Proposed Projects*

Runoff during construction activities associated with the proposed EH&S Expansion and Parking Lot 27 projects, which include relevant 2005 LRDP Planning Strategies and Programs and Practices, could carry pollutants into the storm drain system. Common types of pollutants from construction sites include sediments from soil erosion, construction materials and waste, fertilizers and pesticides from landscaping, and spilled oil, fuel, and other fluids from construction vehicles and heavy equipment. The proposed projects would be required to comply with NPDES Phase I construction requirements, as discussed under the Construction General Permit requirements in **Subsection 4.5.3** above. As discussed above, the requirements include preparation of a SWPPP that includes measures to control pollutants in runoff and monitoring to ensure compliance with the BMPs established in the SWPPP. Compliance with these requirements would reduce construction impacts to a less than significant level.

### *Operation of Proposed Projects*

Development of the EH&S Expansion and Parking Lot 27 would not increase the extent of impervious surfaces on the campus beyond that considered in the 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR, as these sites were previously designated for development in the 2005 LRDP (as amended). The projects thus would not increase stormwater runoff on campus compared to the amount analyzed in the 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR. In addition, development under the proposed projects would be guided by a range of LRDP PSs, and would continue existing campus PPs, such as PP 4.8-1, which requires the Campus to comply with all applicable water quality requirements established by the SARWQCB. Furthermore, the new EH&S Expansion facility and Parking Lot 27 will be included in the Campus Stormwater Management Plan. That plan includes provisions to control discharge of pollutants under normal conditions. The following LRDP PP is relevant to water quality:

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

In addition, the proposed projects would be required to comply with the new Construction General Permit requirement to maintain post-project runoff at a pre-project level and to maintain pre-development drainage densities and times of concentration. The projects would include measures to reduce runoff through landscaping to provide infiltration and bioswales and stormwater retention areas would be incorporated into the landscaping on site. Compliance with these requirements would further reduce operational runoff and associated potential water quality impacts. Therefore, implementation of the proposed projects would not violate any water quality standards or waste discharge requirements, and this impact would be less than significant.

*Construction of Related Projects*

There would be no outdoor construction activities at the existing EH&S facility site that would have the potential to affect surface water quality. Runoff during construction activities associated with the Corporation Yard reorganization could carry pollutants into the storm drain system. However, for the same reasons presented above, the runoff from the construction site at the Corporation Yard would be controlled and this impact would be less than significant.

*Operation of Related Projects*

Improvements at the existing EH&S facility site and the Corporation Yard would not increase the total amount of impervious surfaces on the campus, as both sites are already developed with buildings and pavement. Therefore, there would not be an increase in runoff at these two sites. With respect to water quality impacts from accidental discharges of pollutants from the Corporation Yard or with reuse of the existing EH&S buildings, both facilities are currently covered by the Campus Stormwater Management Plan and will continue to be covered by that plan. That plan includes provisions to control discharge of pollutants under normal conditions. Therefore, the impact from operational runoff would be less than significant.

**Mitigation Measures:** No mitigation is required.

**Impact 4.5-2                    Implementation of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not provide substantial additional sources of polluted runoff. The impact would be less than significant.**

*Proposed Projects*

Operation of the proposed projects, which include relevant 2005 LRDP PSs and PPs, would include transport, handling, and short-term storage of hazardous materials that, if released, could adversely affect water quality if they were to reach the storm drain system. As discussed in **Section 3.0, Project Description**, and **Section 4.4, Hazards and Hazardous Materials**, the proposed EH&S Expansion would include numerous, redundant safeguards to ensure that materials are handled safely in a manner that minimizes the possibility of release in the event of an accident or natural disaster. As discussed in **Section 4.4**, the loading dock would have a secondary containment system that would prevent any materials that might be spilled during loading and unloading from reaching the storm drain system. As with the existing facility, chemical, radiation, and biomedical waste areas within the EH&S Expansion building would be constructed to provide secondary containment of chemicals in the event of spills.



With respect to potential water quality impacts from accidental releases during transport, hazardous materials are transported on the UCR campus in break-resistant containers with secondary containment such as buckets or carts, and these transport practices would be continued at the proposed EH&S Expansion. All EH&S materials management vehicles are supplied with cleanup materials to handle spills and EH&S is not permitted to transport off campus or on City streets. EH&S personnel and vehicles are required to comply with all applicable federal and State laws and campus Programs and Practices to reduce the likelihood and severity of accidents during on-campus transit. These laws, regulations, Programs and Practices, and procedures include training regarding the handling of hazardous wastes. EH&S operations are and would continue to be included in the campus emergency response programs as articulated in the Business Plan and Campus Emergency Response Plan. The Campus Emergency Response Plan specifies measures to be taken in case of accidental spill or release of hazardous materials, including releases that could reach the storm drain system, and requires training of a campus emergency response team that cooperates with local emergency responders. EH&S maintains adequate spill cleanup equipment and trained staff to handle accidental releases. No incidents of releases or spills that could affect the storm drain system have occurred during the period in which EH&S has been in operation on campus.

All hazardous materials transported off-campus are carried by licensed hazardous waste transporters contracted by UCR to remove all hazardous wastes generated by the campus for treatment or disposal at licensed, off-site hazardous waste facilities. Transportation of hazardous materials along any City or State roadway or rail line is subject to all U.S. Department of Transportation (USDOT), California Highway Patrol, and California Department of Health Services hazardous materials transportation regulations. These regulations range from the design of vehicles used to transport wastes to the procedures to be followed in case of spills or leaks during transit, and include the conditions in which materials are packaged, the types of vehicles allowed to transport them, training for vehicle operators, and vehicle inspection. State and federal agencies, including the California Highway Patrol, Caltrans, and USDOT, conduct regular inspections of licensed waste transporters to ensure that they comply with regulatory requirements.

These measures, as well as compliance with the applicable regulations regarding transport, handling, and storage of hazardous materials, would reduce both the risk of release of such materials and the potential for them to reach the storm drain system in the event of an accidental release. Impacts would be less than significant.

### ***Related Projects***

Operational activities at the Corporation Yard would continue to include handling of some hazardous materials, such as paint, fuel, solvents, and cleaning supplies. There would be no increase in the quantity or use of such materials, and the present safe handling procedures and regulations would continue to apply. Activities at the existing EH&S facility site would not include the hazardous materials and waste handling that currently occurs on site, and thus would have a reduced potential to affect surface water quality compared to existing conditions. For these reasons, operation of the related projects would not provide substantial additional sources of polluted runoff, and the impact would be less than significant.

**Mitigation Measures:** No mitigation is required.

#### 4.5.4.6 Cumulative Impacts and Mitigation Measures

The geographic context for the analysis of cumulative groundwater impacts includes the Upper Santa Ana River groundwater basin. This analysis, therefore, includes development anticipated under the 2005 LRDP as amended, the City of Riverside 2025 General Plan, and the County of Riverside General Plan within the Upper Santa Ana River watershed.

**Impact 4.5-3** **Cumulative development, including the proposed EH&S Expansion, Parking Lot 27, and related projects, would not create a significant cumulative impact on water quality.**

Cumulative projects in the area of the proposed project include the proposed Perris Valley rail line project and the Glen Mor 2 Student Apartments (GM2) development. The Perris Valley rail project would involve minor upgrades to an existing rail line along the north side of Watkins Drive, across the roadway from the proposed EH&S Expansion and Parking Lot 27, as well as an increase in the number of trains operating on the line. The rail project would add minimal impervious surfaces in the project vicinity and thereby would not generate a substantial amount of new runoff. The GM2 project will add apartment-style residential buildings up to five stories high and parking structures to a 21-acre site south of the proposed project. The additional stormwater runoff generated by the GM2 project is also within the total amount of runoff analyzed in the 2005 LRDP EIR as that project is an element of the growth evaluated in that EIR. The effects of the cumulative runoff are summarized below, based on the analysis in the 2005 LRDP EIR. (Because the 2005 LRDP Amendment 2 amended the 2005 LRDP to increase development only on the West Campus, the intensity of planned development on the East Campus remained unchanged from the 2005 LRDP, and the 2005 LRDP Amendment 2 EIR therefore did not reexamine hydrology and water quality impacts on the East Campus.)

As stated in the 2005 LRDP EIR, the construction of new development in the vicinity of the campus could cause soil erosion, thereby cumulatively degrading water quality within the watershed. The 2005 LRDP

EIR determined that campus development under the 2005 LRDP would not make a cumulatively considerable contribution to the cumulative effect related to water quality degradation. Development of the proposed projects and related projects would also comply with campus Programs and Practices as well as State and federal laws concerning water quality. As discussed under **Impact 4.5-1** above, the proposed projects and related projects would be required to comply with Construction General Permit requirements that would reduce the potential for the projects to violate water quality standards or waste discharge requirements to a less than significant level. These measures would also minimize the projects' contribution to the less than significant cumulative impact, and this contribution would not be cumulatively considerable.

The 2005 LRDP EIR stated that implementation of the 2005 LRDP would not result in a cumulatively considerable contribution to impacts on stormwater drainage system capacity. As noted above, the 2005 LRDP Amendment 2 EIR did not address this issue for the East Campus because buildout of the East Campus did not change from that projected under the 2005 LRDP. Development of the proposed projects and related projects would not substantially increase stormwater runoff from the campus site compared to the runoff evaluated in the 2005 LRDP EIR. The related projects would involve reuse and redevelopment of existing developed sites and would not add to impervious surfaces or increase stormwater discharges. Therefore, the proposed projects and related projects would not change the conclusion of the 2005 LRDP EIR regarding this cumulative impact.

As discussed under **Impact 4.5-2** above, the proposed projects would involve hazardous materials handling and short-term storage on campus and transportation of such materials on and off campus, with the associated potential for such materials to be released due to accident or natural disaster, as well as the potential for spilled materials to reach the storm drain system. The measures described above, including containment, handling, storage, training, transport, and emergency response requirements, would also minimize the projects' contribution to the less than significant cumulative water quality impact. This contribution would not be cumulatively considerable.

**Mitigation Measures:** No mitigation is required.

## 4.6 LAND USE AND PLANNING

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### 4.6.1 INTRODUCTION

This section describes existing land uses on the UCR campus and analyzes the potential for implementation of the proposed Environmental Health & Safety (EH&S) Expansion, Parking Lot 27 (proposed projects), and related Corporation Yard reorganization and existing EH&S buildings re-use (related projects) to result in land use impacts.

Information used in the analysis below was obtained from site visits, environmental documents associated with other projects at UCR, and other campus data sources.

In response to the Notice of Preparation (NOP) issued for this EIR, the campus community requested that the Draft EIR consider the compatibility of the proposed EH&S Expansion facility with nearby sensitive receptors, including neighboring residences and the UCR Child Development Center. This issue is addressed in the analysis presented below. It is also discussed in **Section 4.4, Hazards and Hazardous Materials**.

### 4.6.2 EXISTING CONDITIONS

#### 4.6.2.1 On-Campus Land Use

The approximately 1,144-acre campus is located entirely within the City of Riverside in Riverside County. The I-215/SR-60 freeway generally bisects the campus in a northwest-southeast alignment. The East Campus is approximately 614 acres and contains the academic core, most student housing and support uses, and all existing recreation facilities. This area is bounded by Blaine Street (including the northwest corner parcel at Blaine Street and Canyon Crest Drive) and Watkins Drive to the north, the freeway to the west and south, and a line roughly following Valencia Hill Drive and its extension south to the east. The West Campus is approximately 530 acres located west of the freeway and is primarily used for agricultural teaching and research. This area is generally bounded by the freeway on the east, University Avenue/Everton Place and its extension west on the north, Chicago Avenue to the west, and Le Conte Drive to the south.

#### *East Campus*

The proposed projects and related projects are located within the East Campus. The following describes the existing land uses on the East Campus by functional land use category.

### **Academic**

The majority of the existing academic facilities are located within the East Campus academic core, which is generally surrounded by Campus Drive. The College of Humanities, Arts, and Social Sciences (CHASS) is located in the western quadrant of the core. The College of Natural and Agricultural Sciences (CNAS) is generally located in the eastern section of the core, as evidenced by the numerous laboratories and greenhouses, with the Physical and Life Sciences primarily located in the northeast section. The Bourns College of Engineering (BCOE) is located in the core's northern section and the School of Business Administration (SoBA) is in the southern section.

### **Housing**

LRDP Housing land uses are *Family, Apartment Housing, and Residence Halls*, which include residence halls, family student housing, and apartment complexes. The majority of the student housing on the UCR campus is located on the East Campus, north of University Avenue, Campus Drive, and Box Springs Road. Residence halls are located east of Aberdeen Drive, south of Linden Street, and north of Big Springs Road. Apartment facilities are located west of Canyon Crest Drive. The Canyon Crest Family Student Housing complex is located east of Canyon Crest Drive between Blaine and Linden Streets. The Glen Mor Student Apartments (1 and 2) complex is located north of Big Springs Road, east of the residence halls.

### **Athletics and Recreation**

Recreational facilities and outdoor fields are generally located in the northwestern portion of the East Campus. These facilities are used for intercollegiate athletics, intramural sports, sports clubs, and general recreation. These facilities include a student recreation center, a gymnasium, a track stadium, handball courts, tennis courts, and a swimming pool (Physical Education building). Outdoor playing fields are located on the East Campus south of Linden Street and include the soccer field, the Amy Harrison Athletic (softball) Field, and the Glen Mor 1 recreation fields which are adjacent to the south of the proposed Parking Lot 27 site. Additionally, UCR and the City of Riverside jointly operate the UCR/City Sports Center, located on campus lands at the southwest corner of Canyon Crest Drive and Blaine Street. This facility provides multi-use playing fields, a baseball field with stadium style seating for 2,500 persons, maintenance structures, and parking for 350 vehicles.

### **Open Space**

Open space on the UCR campus can generally be categorized as one of three types: natural, naturalistic, and landscaped. Natural open spaces are those undeveloped areas of the campus with few, if any, structures and mostly native and naturally occurring plant species. This area predominantly includes the

southeast hills on the East Campus. Naturalistic open spaces are mostly undeveloped areas, but have been subject to modification and/or the introduction of ornamental trees and shrubs. This type of open space is generally limited to drainage channels, arroyos, and the UCR Botanic Gardens. Landscaped open spaces have been developed with turf-covered lawn areas, mature trees, and shrubs or groundcover in planting beds, typically around the edges of these spaces. This type of open space includes the major open spaces on campus, such as the Carillon Mall, and other landscaped pedestrian malls and courtyards in the academic core of the East Campus.

### **Campus Support**

Campus support uses consist of maintenance and operational functions to maintain the campus physical plant and support academic and research activities. These include the Corporation Yard and maintenance; grounds maintenance; central utility plant and satellite plants; electric substation; materials management; fleet services; EH&S; and Transportation and Parking Services (TAPS).

### **Parking**

Parking on the UCR campus is currently provided in surface lots, which are concentrated around the edge of the academic core on the East Campus, with access provided via Campus Drive, Canyon Crest Drive, and Box Springs Road. Additional parking is located adjacent to the student residence halls, with access via Linden Street, Big Springs Road, and North Campus Drive.

#### **4.6.2.2 Existing Adjacent Land Uses**

Land uses surrounding the project site are primarily residential or campus residential. Watkins Drive forms the northeastern edge of the East Campus and is bordered on its north side by an active railroad line, a high pressure jet fuel line (which turns south along Valencia Hill Drive), and a California Department of Water Resources pipeline and easement, with mostly one-story single-family residential uses beyond the rail line and utility easements. Valencia Hill Drive fronts the eastern edge of the campus (north of Big Springs Road), with one-story single-family residential uses along the eastern side of the street nearest the proposed project site and two-story multi-family apartments along the southern portion of Valencia Hill Drive. Land uses north of Blaine Street west of the project site consist of multi-family residential and commercial uses. UCR recreational fields and student housing are located to the south, and UCR support services (TAPS and the Corporation Yard) are located to the west of the proposed EH&S Expansion site, with campus residential facilities and the UCR Child Development Center to the west of the Corporation Yard/TAPS site. The 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR (2011) include more extensive descriptions of the land uses surrounding the campus as a whole.

### 4.6.3 REGULATORY FRAMEWORK

As a State entity, the University of California, of which UCR is a part, is not subject to regional or local plans and policies. Nevertheless, such plans and policies are of interest or concern because the campus and local development are coincident. UCR has a long tradition of working voluntarily and cooperatively with the City of Riverside and other regional agencies, and it is University policy to seek consistency with regional and local plans and policies, where feasible. Therefore, a summary of these plans is presented in this EIR and the consistency of the proposed projects and related projects with these plans is evaluated later in this section.

#### 4.6.3.1 Regional Southern California Association of Governments

The Southern California Association of Governments (SCAG) is a regional council of governments that serves as the Metropolitan Planning Organization for Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties. SCAG serves as a forum for regional issues relating to transportation, the economy and community development, and the environment (UCR 2005 and 2011a).

SCAG has developed a number of plans to achieve regional objectives. Of these, only the Regional Comprehensive Plan is relevant to the proposed EH&S Expansion, Parking Lot 27, and the related projects; it is summarized below.

##### *Regional Comprehensive Plan*

The updated 2008 Regional Comprehensive Plan (RCP) is a long-term comprehensive plan that addresses the SCAG region's many challenges and provides a strategic vision for handling the region's land use, housing, economic, transportation, environmental, and overall quality of life needs. The RCP is similar to a general plan for the region and is intended to function as a voluntary toolbox to assist cities and counties in developing general and specific plans. The RCP includes nine chapters: land use and housing, open space and habitat, water, energy, air quality, solid waste, transportation, security and emergency preparedness, and economy, each with specific goals, outcomes, and action plans designed to help set the path toward a more sustainable region. The RCP includes "constrained policies," which are recommended near-term policies, and "strategic initiatives" that are longer-term strategies aimed to achieve the desired goals and outcomes of the RCP.

Although SCAG did not comment on the NOP for this EIR and has not determined whether the projects are of "regional significance," this EIR evaluates the consistency of the proposed projects and related projects with relevant RCP policies.

### 4.6.3.2 Santa Ana Regional Water Quality Control Board

#### *Water Quality Control Plan (Santa Ana Basin)*

The Santa Ana Regional Water Quality Control Board (SARWQCB) is the regional Water Quality Control Board that regulates water quality in the region of northwestern Orange County, western Riverside County, and parts of southwestern San Bernardino County. The SARWQCB regulates surface water quality in the Santa Ana River watershed via the Santa Ana Basin Water Quality Control Plan (Basin Plan), which was updated in February 2008. The Basin Plan identifies beneficial uses of water and establishes implementation programs to protect those beneficial uses. Through Waste Discharge Requirements, the RWQCB sets limits on pollutants that may be discharged into the Santa Ana River and its tributaries. These limits are designed to meet the water quality objectives established in the Santa Ana Basin Plan. UCR is located within the region under the jurisdiction of the SARWQCB.

### 4.6.3.3 South Coast Air Quality Management District

The management of air quality in the South Coast Air Basin is the responsibility of the South Coast Air Quality Management District (SCAQMD). The SCAQMD is responsible for bringing air quality in the areas under its jurisdiction into conformity with federal and State air quality standards. Specifically, the SCAQMD is responsible for monitoring ambient air pollutant levels throughout the South Coast Air Basin and for developing and implementing attainment strategies to ensure that future air quality will be within federal and State standards.

#### *Air Quality Management Plan*

In order to achieve air quality standards, the SCAQMD prepares and adopts an Air Quality Management Plan (AQMP) that serves as a guideline to bring pollutant concentrations into attainment with federal and State standards. The SCAQMD determines if certain rules and control measures are appropriate for the region according to technical feasibility, cost effectiveness, and the severity of nonattainment. Once the SCAQMD has adopted the proper rules, control measures, and permit programs, it is responsible for implementing and enforcing compliance with those rules, control measures, and programs.

The SCAQMD adopted the currently applicable Final 2007 Air Quality Management Plan (2007 AQMP) for the South Coast Air Basin on June 1, 2007. CARB approved the 2007 AQMP as the comprehensive State Implementation Plan component for the South Coast Air Basin on September 27, 2007. The purpose of the 2007 AQMP for the Air Basin (and those portions of the Salton Sea Air Basin under the SCAQMD's jurisdiction) is to set forth a comprehensive program that will lead these areas into compliance with federal and State air quality planning requirements for ozone and PM<sub>2.5</sub>. In addition, as part of the 2007



AQMP, the SCAQMD requested United States Environmental Protection Agency's (U.S. EPA) approval of a "bump-up" to the "extreme" nonattainment classification of ozone for the SoCAB. The extreme nonattainment classification would extend the ozone attainment date from 2021 to 2024 and allow for the attainment demonstration to rely on emission reductions from measures that anticipate the development of new technologies or improvement of existing control technologies. The U.S. EPA approved the extreme nonattainment request on April 15, 2010.

The SCAQMD listed possible approaches for long-term control measures to reduce ozone and criteria pollutant emissions. These include programs promoting or requiring the extensive retirement of high-emitting vehicles and engines, accelerated penetration of partial zero emissions vehicles (PZEVs) and zero emissions vehicles (ZEVs), expanded modernization and retrofit of heavy-duty trucks and buses, expanded vehicle inspection and maintenance programs, advanced near-zero and zero-emitting cargo transportation technologies, expanded modernization and retrofit of off-road equipment, more stringent gasoline and diesel specifications and extensive use of diesel alternatives, more stringent emission standards for new and existing ocean-going vessels, harbor craft, and jet aircraft, accelerated use of renewable energy and development of hydrogen technology and infrastructure, ultra-low VOC formulations and reactivity-based controls, and AB 32 implementation programs that would have co-benefits of reducing criteria pollutants.

#### **4.6.3.4 County of Riverside**

##### *General Plan*

The County of Riverside completed a final Comprehensive General Plan in October 2003 that serves as the policy guide concerning desirable future physical development of the community. The plan describes anticipated future growth, development, and environmental management programs over the long term within Riverside County. Most of the unincorporated portions of western Riverside County and some of eastern Riverside County are divided into 19 Area Plans to provide more detailed land use and policy direction regarding local issues, such as land use, circulation, and open space. As the UCR campus is located within the City of Riverside, it is not addressed in the Comprehensive General Plan for Riverside County (UCR 2005). The County of Riverside is currently completing the environmental review process for the 2008 General Plan Update.

##### *Western Riverside County Multi-Species Habitat Conservation Plan*

To provide an integrated approach to land use and habitat conservation planning, the County of Riverside has developed a Multiple-Species Habitat Conservation Plan (MSHCP) in coordination with an update of the County General Plan and a Transportation Corridor Plan. The MSHCP builds upon the

previously approved Stephens' Kangaroo Rat Habitat Conservation Plan, and addresses an area of 1.26 million acres along with proposing a conservation area, including public lands, of approximately 500,000 acres. The core of the MSHCP area reserves includes riparian, oak woodland, and 15,000 acres of coastal sage scrub habitat (UCR 2005).

The Western Riverside County MSHCP study area encompasses approximately 1.26 million acres, including the UCR campus. Conservation target areas within the plan include areas in the vicinity of the campus, such as the Box Springs Mountains and Sycamore Canyon Park. Although sections of Cells 634 and 719 of the MSHCP do include portions of the campus, the plan does not identify any portion of the UCR campus for conservation (UCR 2005).

#### **4.6.3.5 City of Riverside**

##### *General Plan*

The City of Riverside adopted its current General Plan (General Plan 2025) in November 2007. The General Plan 2025 designates the entire UCR campus for public facilities/institutional uses. The UCR campus is located at the eastern edge of the City of Riverside, within the University Neighborhood Plan area, which was adopted in 2008 under the provisions of the General Plan 2025. The University Neighborhood Plan provides the most recent statement of the City's land use designations, goals, and policies relevant to the campus.

##### *University Neighborhood Plan*

The areas in the City surrounding UCR are subject to the provisions of the University Neighborhood Plan. Written by the City with input from UCR, residents, and property owners, the University Neighborhood Plan was developed as part of the Riverside General Plan 2025. The Plan accommodates the expansion of facilities and student enrollment at UCR while ensuring the preservation and enhancement of residential areas within the University Neighborhood Plan area and encourages the reuse and/or revitalization of underutilized commercial areas with appropriately scaled mixed-use developments to serve both residents of the City and UCR students, faculty, and staff.

The University Neighborhood Plan addresses five primary land use challenges and opportunities: the need for an adequate supply of housing in proximity to the UCR campus, lack of adequate space for student housing in vacant parcels within the University Neighborhood, student demand for rental units and overcrowding of rental units within the single-family areas east of Watkins Drive, current lack of development opportunities for new types of retail areas surrounding UCR, and the economics of

revitalizing small, neighborhood shopping areas. The University Neighborhood Plan includes various land use policies relevant to these issues:

- UNP 1.1 — Coordinate with UCR and neighborhood groups in joint planning efforts, including the joint development and updates of the UCR Long Range Development Plan.
- UNP 1.2 — The City should support UCR-created Educational Programs for UCR students regarding their relationships with the University Neighborhood.
- UNP 1.3 — Protect the character of the existing single-family neighborhoods, seeking to minimize potential “town gown” conflicts.
- UNP 1.4 — Encourage the reuse and/or revitalization of underutilized commercial areas through appropriately scaled mixed-use development.
- UNP 1.5 — Seek opportunities to develop commercial centers that serve both students and civilian needs.
- UNP 2.1 — Encourage the construction of new rental apartments as well as the retention of existing and future rental stock and the provision of affordable units.
- UNP 3.1 — Protect and maintain the single-family residential areas located primarily east of Watkins Drive and the pockets of single-family areas located west of Watkins Drive.
- UNP 3.2 — Provide quality, affordable housing for University Neighborhood residents, students, faculty and staff.
- UNP 3.3 — Explore opportunities to revitalize older shopping centers by increasing the level of neighborhood shopping and pedestrian amenities, upgrading the tenant mixes and encouraging private sector investment in the existing shopping centers throughout the University Neighborhood. This may include introducing mixed-use housing where appropriate.
- UNP 3.4 — Continue to upgrade University Avenue as a location for community and University related housing and commercial areas as well as enhancing University Neighborhood’s accessibility to Downtown and the Riverside Marketplace.
- UNP 4.1 — Update the University Avenue Specific Plan to allow for mixed-use and residential development along the corridor that supports land use designations of the General Plan.
- UNP 4.2 — Encourage the creation of a continuous uniform streetscape along University Avenue.
- UNP 4.3 — Encourage student housing and activities along the University Avenue corridor.
- UNP 5.1 — Preserve the rural lifestyle in the Mount Vernon Bowl District.
- UNP 5.2 — Encourage Riverside County to carefully review development proposals for open spaces adjacent to the Box Springs Mountain Reserve Park in order to ensure sensitivity to the natural terrain and compatibility with residential uses in the Mount Vernon Bowl area.

#### 4.6.4 IMPACTS AND MITIGATION MEASURES

##### 4.6.4.1 Significance Criteria

The impacts on land use and planning from the implementation of the proposed projects and related projects would be considered significant if they would exceed the following significance criteria, in accordance with Appendix G of the *State CEQA Guidelines* and the UC CEQA Handbook:

- Physically divide an established community;
- Result in development of land uses that are substantially incompatible with existing adjacent land uses or with planned uses;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect; or
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

##### 4.6.4.2 CEQA Checklist Items Adequately Addressed in the Initial Study

The analysis in the Initial Study prepared for the proposed projects and related projects and circulated with the NOP concluded that further analysis of the following issues was not required in the EIR.

- Physically divide an established community.

As discussed in the Initial Study, development associated with the proposed projects and related projects would occur within established campus boundaries, and no incursion into, or division of, the surrounding residential communities would occur. There would be no impact.

- Conflict with any applicable habitat conservation plan or natural community conservation plan.

As discussed in the Initial Study, lands affected by the proposed EH&S Expansion and Parking Lot 27 projects are not located within the boundaries of the Western Riverside County MSHCP. Therefore, development of the projects would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan. No impact would occur.

The adjacent Corporation Yard is also located outside the boundaries of the Western Riverside County MSHCP, and there would be no impact from this related project.

Although the existing EH&S facility lies within one of the subunits of the MSHCP, the plan does not identify any portion of the campus for conservation. Furthermore, this site is already developed and in

use, and project-related activity on this site would be limited to removal of the existing storage containers and interior renovation of the buildings. Daily operations at the existing EH&S site following project completion would be similar to or less intensive than those currently taking place. The related project would therefore not conflict with the MSHCP.

#### 4.6.4.3 Methodology

To estimate the potential for implementation of the proposed projects or related projects to result in land use incompatibilities between campus development and adjacent community land uses, or conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect, existing land uses (on- and off-campus) were compared to the land uses under the proposed projects and related projects.

#### 4.6.4.4 Relevant LRDP Mitigation Measures, Planning Strategies, and Programs and Practices

The 2005 LRDP Amendment 2 EIR identifies a series of Planning Strategies (PS) and Programs and Practices (PP) that are relevant to land use and includes Mitigation Measures (MM) to reduce impacts of buildout of the campus under the 2005 LRDP as amended. These measures are considered part of the proposed projects and related projects for purposes of this analysis. The full list of PSs, PPs, and LRDP MMs is included in **Appendix 1.0** of this EIR, and those relevant to land use considerations for the proposed projects and related projects are provided in each impact discussion below.

#### 4.6.4.5 Project Impacts and Mitigation Measures

**Impact 4.6-1 Implementation of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would be consistent with the on-campus land use designations. These uses would not be substantially incompatible with existing or proposed adjacent land uses on and off campus. The impact would be less than significant.**

##### *Proposed Projects*

##### **Consistency with Land Use Designation**

The proposed EH&S Expansion site and Parking Lot 27 site, as well as the adjacent Corporation Yard, are located in the northeastern portion of the East Campus on a portion of the campus designated for Campus Support uses in the 2005 LRDP and LRDP Amendment 2. The proposed projects are consistent with the Campus Support land use, which allows physical plant, maintenance and operations, and

related uses, including parking. The location is close to major roadways and freeway access and is easily accessible from on-campus generator locations, and is therefore consistent with project objectives regarding proximity to on-campus generators and off-campus haul routes to allow for safe transport of hazardous materials to and from the EH&S facility. The proposed projects are also consistent with campus planning principles regarding location and design of projects to maximize and efficiently use available developable space on campus.

### **Compatibility with Adjacent On-campus Land Uses**

On-campus land uses immediately surrounding the EH&S Expansion and Parking Lot 27 site are primarily residential. The nearest on-campus residential uses, the Pentland Hills and Glen Mor 1 residential complexes, are located approximately 300 feet south of the project site. A third student-housing complex (Glen Mor 2) is currently under construction on a site approximately 500 feet south of the proposed project site. The adjacent Corporation Yard is currently used for Campus Support uses. Parking Lot 27 would be adjacent to and north of the existing Parking Lot 20. The on-campus UCR Child Development Center is located approximately 1,200 feet northwest of the EH&S Expansion project site and is adjacent to the related Corporation Yard project site.

The proposed projects could potentially affect nearby on-campus land uses primarily through their operational impacts related to air quality, hazards and hazardous materials, noise, and traffic, and thereby result in an impact related to incompatible uses. Other impacts of the proposed projects would generally be site-specific in nature and would not result in an impact related to incompatible land uses. Similarly, the proposed projects' construction-phase impacts would be short term and would not result in an impact related to incompatible land uses.

Air quality effects of the proposed projects are discussed in **Section 4.2, Air Quality**. As discussed in that section, the proposed projects would not have a significant impact due to air emissions or odors. There is thus no significant air quality issue associated with the EH&S Expansion and Parking Lot 27 that could result in impacts related to incompatible land uses.

As discussed in **Section 4.4, Hazards and Hazardous Materials**, activities at the proposed EH&S Expansion would comply with State and federal regulations regarding the handling of hazardous materials and would not pose a substantial risk to the public, including nearby residents. There would be no hazardous material use or waste generation associated with the proposed Parking Lot 27. There is thus no significant safety issue associated with the proposed projects that could result in impacts related to incompatible land uses.

While the proposed EH&S Expansion and Parking Lot 27 site is located near on-campus residential uses, it is separated from these uses by a roadway and parking lots and the proposed EH&S Expansion would be screened from the nearby on-campus residences by landscaping and fencing around the perimeter of the EH&S Expansion and by landscaping and setbacks from Parking Lot 27. As discussed in **Section 4.7, Noise**, operational noise from the EH&S Expansion facility and Parking Lot 27 at nearby on-campus residential receptors would be reduced by this screening and by the distance between the project site and the nearby receptors, and would not reach levels above applicable thresholds. There would therefore be no significant operational noise effects associated with project operations that could result in impacts related to incompatible land uses.

As discussed in **Section 4.8, Transportation and Traffic**, the proposed projects would generate a relatively small number of new vehicle trips along local roadways, including trips by employees and visitors as well as periodic truck trips for hazardous waste hauling. In addition, the distribution pattern of existing vehicle trips would be altered, with EH&S vehicles that currently travel to the existing EH&S facility rerouted to the proposed EH&S Expansion. However, all of these EH&S vehicle trips and employee trips would use internal campus roadways, including Linden Street, which runs between the project site and nearby campus residences and would provide the primary project access. As discussed in **Section 4.8**, the new and redistributed traffic would not cause impacts to intersection LOS and would be too small to affect roadway levels of service (LOS). In addition, many of these rerouted trips would be offset by the transfer of Mail Services operations to the existing EH&S facility that would occur under the related projects. No safety hazards due to project design were identified that could cause significant impacts to pedestrians or drivers in the project vicinity. There would therefore be no significant traffic effects associated with the proposed projects that could result in impacts related to incompatible land uses.

Furthermore, development of the proposed EH&S Expansion and Parking Lot 27 would be guided by a range of LRDP PSs. The following 2005 LRDP PSs are relevant to land use on the project site and the adjacent areas:

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 Open Space 4	Provide landscaped buffers and setbacks along campus edges, such as Valencia Hill Drive and its extension south of Big Springs Road, Martin Luther King Boulevard, and the I-215/SR-60 freeway.

- PS Campus & Community 1 Provide sensitive land use transitions and landscaped buffers where residential off campus neighborhoods might experience noise or light from UCR activities.
- PS Transportation 6 Implement parking management measures that may include
- Restricted permit availability
  - Restricted permit mobility
  - Differential permit pricing
- PS Development Strategy 1 Establish a design review process to provide regular review of building and landscape development on campus.

The proposed projects are consistent with PSs Land Use 7, Open Space 4, and Campus & Community 1 in that they would provide parking at the edge of campus and would include landscaping to provide buffering and reduce noise and light effects from the projects on nearby uses. Parking Lot 27 would be subject to campus parking management measures, including permit requirements, and would thus be consistent with PS Transportation 6. The proposed projects are undergoing a design review process, as required by PS Development Strategy 1.

In addition, continued implementation, as applicable, of the following existing campus PPs would also reduce potential land use incompatibilities with on-campus and off-campus land uses and are assumed as part of the proposed projects:

- PP 4.9-1(a) The Campus shall provide design professionals with the 2007 Campus Design Guidelines and instructions to implement the guidelines, including those sections related to use of consistent scale and massing, compatible architectural style, complementary color palette, preservation of existing site features, and appropriate site and exterior lighting design.
- (This is identical to Aesthetics PP 4.1-1.)
- PP 4.9-1(b) The Campus shall continue to provide design professionals with the 2007 Campus Design Guidelines and instructions to develop project-specific landscape plans that are consistent with the Guidelines with respect to the selection of plants, retention of existing trees, and use of water conserving plants, where feasible.
- (This is identical to Aesthetics PP 4.1-2(a).)



In accordance with PP 4.9-1(a) and (b), the proposed facilities have been sited to minimize site disturbance and maintain existing landscaping and have been designed to be consistent with the Campus Design Guidelines, which would develop the overall visual character of new development to be compatible with existing on-campus development.

#### **Compatibility with Adjacent Off-campus Land Uses**

Off-campus land uses immediately surrounding the EH&S Expansion and Parking Lot 27 site consist of a rail line and high-pressure jet fuel pipeline easement to the north of Watkins Drive, single-family residences beyond the rail line and easement, and single-family residences to the east across Valencia Hill Drive, with multi-family apartments on the south end of Valencia Hill Drive. The distance to the nearest off-campus residential uses both north and east of the project site is approximately 230 feet. As demonstrated by the impact analysis in **Sections 4.2** and **4.4**, there would be no air quality or hazardous-materials-related impacts to nearby residences and therefore no impacts related to incompatible land uses. The proposed projects would not physically interfere with the operations of the existing rail line or create increased risks to operations on the line and, for the reasons discussed in **Section 4.4**, would not result in increased risks related to the existing jet fuel pipeline.

The proposed EH&S Expansion and Parking Lot 27 site is located near off-campus residential uses; however, it is separated from these uses by a roadway and utility easement. It would be screened from the nearby residences by both landscaping and fencing around the perimeter of the EH&S Expansion facility, and by landscaping and setbacks around Parking Lot 27. As demonstrated in the analysis in **Section 4.7**, operational noise from the EH&S Expansion and Parking Lot 27 at nearby off-campus residential receptors would be reduced by this screening and by the distance between the project site and the nearby off-campus receptors, and would not reach levels above applicable thresholds. There would therefore be no significant noise effects associated with the proposed projects that could result in impacts related to incompatible land uses.

As discussed in **Section 4.8** and above for on-campus uses, the proposed projects would generate a relatively small number of new vehicle trips and redistribute existing trips along local roadways. Most of these trips would use internal campus roadways; occasional truck trips for hazardous waste hauling would use Watkins Drive which runs between the project site and nearby off-campus residences. However, as discussed in **Section 4.8**, the new and redistributed traffic would not cause impacts to intersection LOS and would be too small to affect roadway LOS. No safety hazards due to project design were identified that could cause significant impacts to pedestrians or drivers in the project vicinity. For the same reasons discussed for on-campus land uses above, there would be no significant traffic effects associated with the proposed projects that could result in impacts related to incompatible land uses.

### Summary of Land Use Compatibility

For the reasons discussed above, and with implementation of the identified LRDP Planning Strategies and campus Programs and Practices which are a part of the proposed projects, implementation of the proposed EH&S Expansion and Parking Lot 27 projects would not result in development of land uses that are substantially incompatible with existing adjacent land uses or with proposed uses. The impact would be less than significant.

### *Related Projects*

The Corporation Yard, like the proposed project site, is located in a portion of the campus designated for Campus Support uses in the 2005 LRDP, as amended. The related Corporation Yard reorganization project would be subject to the same PSs and PPs as the proposed projects, and would include design review and landscape buffering to reduce noise and light impacts to nearby uses. With implementation of the identified LRDP, the related Corporation Yard reorganization project would not result in development of land uses that are substantially incompatible with existing adjacent land uses or with proposed uses. There would be no increase in operational noise at the Corporation Yard adjacent to the Child Development Center and noise would likely decrease because Mail Services operations and associated vehicle noise would be transferred to a different location (the existing EH&S facility). The impact would be less than significant.

The existing EH&S facility is located in a portion of the campus designated for academic uses in the 2005 LRDP as amended. This designation allows for some campus operations and support uses such as would occur under the related EH&S facility reuse project. The operations that would occur under this related project, including relocation of the Mail Services and Printing & Reprographic Services, would not involve new development and would be consistent with the land use designation under the 2005 LRDP as amended. The related EH&S facility reuse project would not result in development of land uses that are substantially incompatible with existing adjacent land uses or with proposed uses. The impact would be less than significant.

**Mitigation Measures:** No mitigation is required.

**Impact 4.6-2                      Implementation of the proposed EH&S Expansion, Parking Lot 27 (proposed projects,) and related projects would not conflict with a land use plan, policy, or regulation of a local agency. The impact would be less than significant.**

UCR is part of the University of California, a constitutionally created entity of the State of California. As a constitutional entity, the University of California is not subject to municipal land use plans, such as the

County and City General Plans. Nevertheless, UCR has considered local plans and policies for the communities surrounding the campus. The City of Riverside General Plan, which includes the campus, has identified UCR as a public facility/institutional land use, and the proposed projects and related projects are generally consistent with this local plan.

UCR, which meets regularly with the City, maintains an ongoing exchange of ideas and information, and pursues mutually acceptable solutions for issues that confront both the campus and the community. To foster this process, UCR participates in and communicates with City and community organizations, and sponsors various meetings and briefings to keep local organizations, associations, and elected representatives apprised of ongoing planning efforts. UCR participated in the development of the current City of Riverside General Plan and the University Neighborhood Plan in an effort to coordinate planning efforts between the City of Riverside and the Campus. As discussed in the Land Use sections of the 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR (2011), the LRDP is broadly consistent with local land use plans and includes PSs to promote planning coordination with local agencies, including the City of Riverside. The proposed projects are consistent with the amended 2005 LRDP, as discussed under **Impact 4.6-1** above.

As required by Section 15125(d) of the *State CEQA Guidelines*, this document discusses any inconsistencies between the proposed EH&S Expansion, Parking Lot 27, and related projects and applicable regional plans. The regional plans relevant to the proposed projects and related projects, and for which a consistency analysis is provided, include the Regional Comprehensive Plan (SCAG 2008), the Water Quality Control Plan for the Santa Ana River Basin (SARWQCB 2008), and the Air Quality Management Plan (SCAQMD 2007). As demonstrated by the analysis below, the proposed projects would not conflict with any local or regional plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

#### *Southern California Association of Governments Regional Comprehensive Plan*

The RCP consists of nine chapters that contain goals, policies, and implementation strategies, including land use and housing, open space and habitat, water, energy, air quality, solid waste, transportation, security and emergency preparedness, and economy. The discussion below evaluates the consistency of the proposed projects and related projects with relevant RCP policies.

Policy OSC-8	Local governments should encourage patterns of urban development and land use, which reduce costs on infrastructure and make better use of existing facilities.
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*Consistency Analysis.* The proposed EH&S Expansion would be an infill building on a site that is surrounded by existing development. Infrastructure systems are in place on campus to serve current development. The construction of the proposed EH&S Expansion and Parking Lot 27 would require basic service extensions from the existing delivery infrastructure. The location of the EH&S Expansion and Parking Lot 27 site in close proximity to existing development on the campus would ensure that the length of the service extension would be minimal. As a result, the proposed projects are consistent with this policy.

The Corporation Yard would be reorganized to accommodate activities at the proposed EH&S Expansion, but would not require the extension of infrastructure or development of undeveloped land. Reuse of the existing EH&S buildings, including relocation of Mail Services and Printing & Reprographics to the existing EH&S buildings, would involve use of existing buildings and infrastructure and would not involve new development. The related projects would therefore be consistent with this policy.

Policy EN-14                      Developers and local governments should explore programs to reduce single occupancy vehicle trips such as telecommuting, ridesharing, alternative work schedules, and parking cash-outs.

*Consistency Analysis.* The proposed projects would implement the Campus's Transportation Demand Management (TDM) program in an effort to not only increase transit trips, but also biking and walking trips as well. PSs described under **Impact 4.6-1**, above, would also contribute to consistency with this policy. PS Transportation 6 would implement parking management measures such as restricted permit availability, restricted permit mobility, and differential permit pricing. The proposed projects would provide a small amount of parking that would largely replace existing on-street parking and would not provide an oversupply of parking for the project facilities that could encourage more campus personnel to choose to drive to the campus. The projects would also include direct pedestrian/bike path connections to the central part of campus, facilitating use of alternative forms of transit. Thus, for these reasons, the proposed projects are consistent with this policy.

The related projects would involve reorganization or relocation of existing campus functions, and would not increase vehicle trips. The Campus's TDM program would continue to apply to these activities, and the related projects would be consistent with this policy.

***Regional Water Quality Control Board, Water Quality Control Plan (Santa Ana Basin Plan)***

The Santa Ana Basin Plan, implemented by the SARQWCB, specifically (1) designates beneficial uses for surface and ground waters, (2) sets narrative and numerical objectives that must be attained and

maintained to protect the designated beneficial uses and conform to the State's anti-degradation policy, and (3) describes implementation programs to protect all waters in the region. In cases where the Basin Plan does not contain a standard for a particular pollutant, other criteria are used to establish a standard.

*Consistency Analysis.* The campus is situated over the Riverside-Arlington Groundwater subbasin. However, as noted in the Initial Study, the campus is not a significant source of groundwater recharge to the groundwater subbasin. The Campus is required to comply with all applicable water quality requirements established by the SARWQCB and SWRCB for stormwater. Therefore, new development on the campus under the proposed projects would be consistent with the Basin Plan and the Porter-Cologne Water Quality Control Act.

The related Corporation Yard reorganization project would be subject to the same water quality requirements as the proposed projects and, with compliance with these requirements, would be consistent with the Basin Plan. The related EH&S buildings reuse project would not alter existing developed areas and the policies of the Basin Plan would not apply to this related project.

***South Coast Air Quality Management District, Air Quality Management Plan (AQMP)***

The future air quality levels projected in the 2007 AQMP are based on several assumptions. For example, the SCAQMD assumes that general new development within the Air Basin will occur in accordance with population growth and transportation projections identified by SCAG in its most current version of the RCP. The AQMP also assumes that general development projects will include strategies (i.e., mitigation measures) to reduce emissions generated during construction and operation.

*Consistency Analysis.* Consistency with the projections of employment and population forecasts identified in the RCP constitutes consistency with the AQMP growth projections, since the RCP forms the basis of the land use and transportation control portions of the AQMP. The City of Riverside includes campus growth under the 2005 LRDP in its growth projections. The projected growth in campus population under the amended 2005 LRDP is within the SCAG projections for the City of Riverside. The proposed projects would not involve increases in employment and population beyond those anticipated in the 2005 LRDP as amended and included in forecasts identified in the RCP. Therefore, the proposed employment increase would be consistent with AQMP attainment forecasts.

The proposed projects would use existing roadway infrastructure and public service systems and represent infill development on a developed campus. The campus is centrally located relative to activity centers throughout the Southern California region, connected by an extensive transportation network. UCR implements a TDM Program that facilitates and promotes the use of transit, carpools, vanpools, and bicycling. The TDM Program would be extended to the new employees associated with the proposed

EH&S Expansion project. The TDM program is consistent with the goals of the AQMP for reducing the emissions associated with new development.

This EIR fully addresses air quality impacts resulting from campus development under the proposed projects (See **Section 4.3, Air Quality**) and finds that emissions of criteria pollutants that would result from project construction and operations would not exceed any of the regional and localized significance thresholds. Based on this information, the proposed projects are consistent with the 2007 AQMP. AQMP consistency is also discussed in **Section 4.3, Air Quality**.

As the proposed projects would not conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect, impacts on land use would be less than significant.

The related projects would not involve increases in employment and population beyond those anticipated in the 2005 LRDP as amended and included in forecasts identified in the RCP. They would consist of replacement or reuse of existing facilities and, like the proposed projects, would use existing roadway infrastructure and public service systems within a developed campus. Based on this information, the related projects are consistent with the 2007 AQMP.

As the related projects would not conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect, impacts on land use would be less than significant.

**Mitigation Measures:** No mitigation is required.

#### **4.6.4.6 Cumulative Impacts and Mitigation Measures**

The geographic context for the analysis of cumulative land use and planning impacts includes the portions of the City of Riverside immediately surrounding the East Campus, which contain a mix of land uses, including commercial, residential, industrial, and institutional. The analysis accounts for all anticipated cumulative growth within this geographic area, as represented by full implementation of the City of Riverside General Plan.

**Impact 4.6-3** **Cumulative development, including the EH&S Expansion, Parking Lot 27, and related projects, would not result in the development of land uses that are substantially incompatible with existing or planned land uses adjacent to the campus. The contribution of the proposed campus**

**development to this cumulative impact would not be cumulatively considerable.**

Cumulative land use impacts for the proposed projects and related projects are related to the projects' location at the campus boundary and the potential for incompatibility with nearby on- and off-campus uses. As discussed above in the Environmental Setting, land around the campus, including the area near the proposed project site and the related Corporation Yard and existing EH&S facility project sites, is largely built out. Only two projects are planned for the immediate vicinity of the proposed projects and related projects: the approved Glen Mor 2 Student Apartments (GM2), located on campus about 500 feet south of the proposed Parking Lot 27, and the Perris Valley Line project, located off campus north of the proposed project site across Watkins Drive. The GM2 project is a student residential development that will be similar in scale and intensity to existing campus residential uses; the EIR prepared for that project found that it would not have significant impacts related to land use compatibility, nor would it contribute to cumulative land use impacts (UCR 2011b). The Perris Valley Line project would add several passenger trains daily to an existing rail line, and would involve minor upgrades to existing equipment and construction of sound walls at certain locations. The Perris Valley Line project would not involve changes to existing land use and, as concluded in the EIR for that project, would not result in significant impacts related to land use compatibility or contribute to cumulative land use impacts (Riverside County Transportation Commission 2010). The cumulative projects are thus not expected to create a cumulatively significant land use impact with respect to land use compatibility. For the reasons described under **Impacts 4.6-1** and **4.6-2** above, the proposed projects and related projects would not be incompatible with nearby on- and off-campus residential uses, nor would they conflict with local land use plans, policies, or regulations. The cumulative impact would be less than significant.

**Mitigation Measures:** No mitigation is required.

**Impact 4.6-4**

**Cumulative development, including the EH&S Expansion, Parking Lot 27, and related projects, would not conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the development. The contribution of the proposed projects to this cumulative impact would not be cumulatively considerable.**

Future non-University development off-campus would be reviewed for consistency with adopted land use plans and policies by the City of Riverside, in accordance with the requirements of CEQA, the State Zoning and Planning Law, and the State Subdivision Map Act, all of which require findings of plan and policy consistency prior to approval of entitlements for development. For this reason, impacts associated with inconsistency of future non-University development off-campus with adopted plans and policies

would not be significant. Even if the cumulative land use impact of future development would be significant, the contribution of the proposed projects and related projects to such impacts would not be cumulatively considerable. For reasons presented in **Impact 4.6-1** above, development under the proposed projects and related projects would be compatible with the off-campus land uses that surround it. The impact would be less than significant.

**Mitigation Measures:** No mitigation is required.



### 4.7.1 INTRODUCTION

This section describes existing noise conditions on the UCR campus and evaluates the potential noise impacts resulting from implementation of the proposed Environmental Health and Safety (EH&S) Expansion, Parking Lot 27 (proposed projects), and related projects, including the potential for substantial temporary or permanent increases in ambient noise levels within or near the campus and the potential for the projects to expose people to excessive noise levels or vibration.

Data used in the preparation of this section were taken from various sources, including the 2005 LRDP EIR, the 2005 LRDP Amendment 2 EIR (2011), the traffic report and noise modeling prepared for the Glen Mor 2 Student Apartments EIR, and the traffic report prepared for the 2005 LRDP Amendment 2 EIR.

In response to the Notice of Preparation (NOP) for this EIR, a commenter stated that the Draft EIR should address noise from vehicles, particularly waste-hauling trucks, stopping and accelerating at stop-controlled intersections. The comment specifically noted the intersection of Valencia Hill Drive and Watkins Drive as a location where such noise should be evaluated. This issue is addressed in the analysis below.

### 4.7.2 EXISTING CONDITIONS

#### 4.7.2.1 Characteristics of Noise

Noise is usually defined as unwanted sound that is disturbing or annoying. It is an undesirable by-product of society's normal day-to-day activities. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm, and/or when it has adverse effects on health. The objectionable nature of sound may be caused by its pitch, its loudness, or both. Pitch is the height or depth of a tone or sound, depending on the relative rapidity (i.e., frequency) of the vibrations by which it is produced. Higher-pitched signals sound louder to humans than sounds with a lower pitch. Loudness is the amplitude of sound waves combined with the reception characteristics of the ear. Amplitude may be compared with the height of an ocean wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a tenfold increase in acoustic energy, while 20 decibels is 100 times

more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its decibel level. Each 10-decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms for noise are defined in **Table 4.7-1, Definitions of Acoustical Terms**.

**Table 4.7-1  
Definitions of Acoustical Terms**

Term	Definitions
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dB(A)	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, Leq	The average A-weighted noise level during the measurement period. The hourly Leq used for this report is denoted as dB(A) Leq[h].
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 PM to 10:00 PM and after addition of 10 decibels to sound levels in the night between 10:00 PM and 7:00 AM.
Day/Night Noise Level, Ldn	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 PM and 7:00 AM.
L01, L10, L50, L90	The A-weighted noise levels that are exceeded 1 percent, 10 percent, 50 percent, and 90 percent of the time during the measurement period.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.

There are several methods of characterizing sound. The most common in California is the A-weighted sound level, referenced in units of dB(A).<sup>1</sup> This method is used because sound pressure level alone is not a reliable indicator of loudness, as the human ear does not respond uniformly to sounds at all frequencies. For example, it is less sensitive to low and high frequencies than to the medium frequencies that more closely correspond to human speech. The A-weighted noise level was developed to better correspond with peoples' subjective judgment of sound levels. In general, changes in community noise levels of less than 3 dB(A) are not typically noticed by the human ear (FHA 1980). Changes from 3 to 5 dB(A) may be noticed by some individuals who are especially sensitive to changes in noise. An increase greater than 5 dB(A) is readily noticeable, while, as noted above, the human ear perceives a 10 dB(A) increase in sound level to be a doubling of sound volume. A doubling of sound wave energy (for example, from doubling the volume of traffic on a roadway) would result in a 3 dB increase in sound, a barely perceptible change in sound level. Common noise levels associated with certain activities are shown on **Figure 4.7-1, Common Noise Levels**.

Noise sources include: (1) point sources, such as stationary equipment or individual motor vehicles; and (2) line sources, such as a roadway with a large number of point sources (motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6.0 dB(A) for each doubling of distance from the source to the receptor at acoustically "hard" sites and 7.5 dB at acoustically "soft" sites.<sup>2</sup> For example, a 60 dB(A) noise level measured at 50 feet from a point source at an acoustically hard site would be 54 dB(A) at 100 feet from the source and 48 dB(A) at 200 feet from the source. Sound generated by a line source typically attenuates at a rate of 3.0 dB(A) and 4.5 dB(A) for each doubling of distance from the source to the receptor for hard and soft sites, respectively. Sound levels can also be attenuated by man-made or natural barriers (e.g., sound walls, berms, ridges), as well as elevation differences.

Wall/berm combinations may reduce noise levels by as much as 10.0 dB(A) depending on their height and distance relative to the noise source and the noise receptor (US Department of Transportation 1980b). Noise levels may also be attenuated 3.0 to 5.0 dB(A) by a first row of houses and 1.5 dB(A) for each additional row of houses.

The minimum exterior-to-interior noise attenuation provided by typical building construction in California is provided in **Table 4.7-2, Outside to Inside Noise Attenuation (dBA)**. These noise reduction

<sup>1</sup> All sound levels discussed in this section use the A-weighting scale.

<sup>2</sup> Examples of "hard" or reflective sites include asphalt, concrete, and hard and sparsely vegetated soils. Examples of acoustically "soft" or absorptive sites include soft sand, plowed farmland, grass, crops, or heavy ground cover.

levels are based on older (pre-1970s) construction; exterior-to-interior noise reduction of newer residential units constructed in California is generally 30 dB(A) or more.

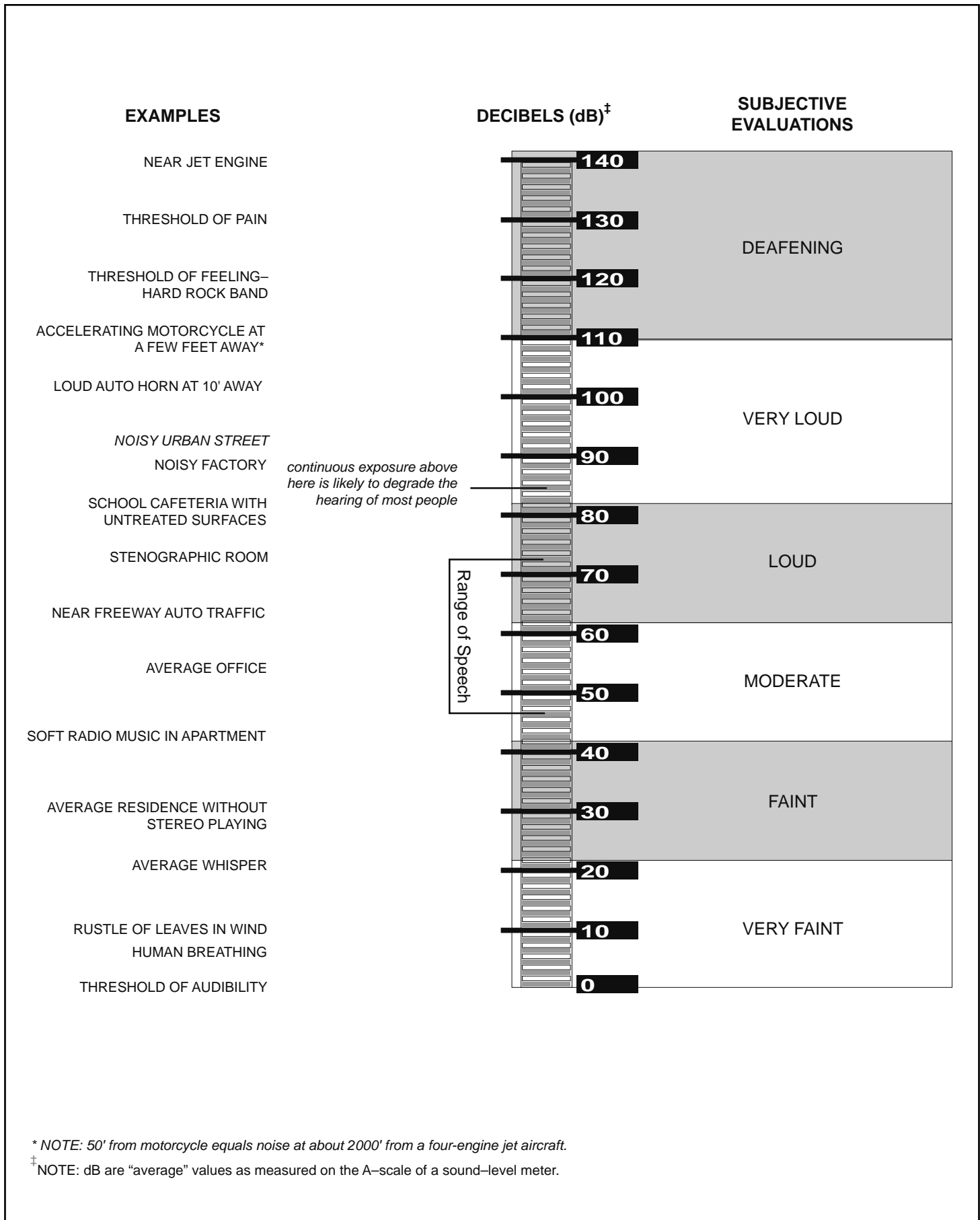
**Table 4.7-2**  
**Outside to Inside Noise Attenuation (dBA)**

Building Type	Open Windows	Closed Windows
Residences	17	25
Schools	17	25
Churches	20	30
Hospitals/Convalescent Homes	17	25
Offices	17	25
Theaters	20	30
Hotels/Motels	17	25

*Source: Transportation Research Board, National Research Council, Highway Noise: A Design Guide for Highway Engineers, National Cooperative Highway Research Program Report 117.*

When assessing community reaction to noise, there is an obvious need for a scale that averages varying noise exposures over time and quantifies the results in terms of a single number descriptor. Several scales have been developed that address community noise level. Those that are applicable to this analysis are the Equivalent Noise Level (Leq), the Day-Night Noise Level (Ldn), and the Community Noise Equivalent Level (CNEL).

- Leq is the average A-weighted sound level measured over a given time interval. Leq can be measured over any period, but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods.
- Ldn is a 24-hour Leq with a “penalty” of 10 dB added during the nighttime hours (10:00 PM to 7:00 AM), which is typically sleeping time.
- CNEL is another average A-weighted sound level measured over a 24-hour period. However, the CNEL noise scale is adjusted to account for some individuals’ increased sensitivity to noise levels during the evening as well as the nighttime hours. A CNEL noise measurement is obtained after



\* NOTE: 50' from motorcycle equals noise at about 2000' from a four-engine jet aircraft.

<sup>‡</sup> NOTE: dB are "average" values as measured on the A-scale of a sound-level meter.

FIGURE 4.7-1

adding a “penalty” of 5 dB to sound levels occurring during the evening from 7:00 PM to 10:00 PM, and 10 dB to sound levels occurring during the nighttime from 10:00 PM to 7:00 AM.<sup>3</sup>

#### 4.7.2.2 Characteristics of Vibration

Vibration is minute variation in pressure through structures and the earth, whereas noise is minute variation in pressure through air. Thus, vibration is felt rather than heard. Some vibration effects can be caused by noise, e.g., the rattling of windows from truck pass-bys. This phenomenon is related to the production of acoustic energy at frequencies that are close to the resonant frequency of the material being vibrated. Groundborne vibration attenuates rapidly as distance from the source of the vibration increases.

Vibration can be measured as particle velocity in inches per second and referenced as vibration decibels (VdB). The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources within buildings such as operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic is barely perceptible. The range of interest is from approximately 50 VdB, which is typical background vibration velocity, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. **Figure 4.7-2, Typical Levels of Groundborne Vibration**, identifies the typical groundborne vibration levels in VdB and human response to different levels of vibration.

#### 4.7.2.3 Noise-Sensitive Land Uses near Project Site and Truck Route

Existing noise-sensitive residential uses in the vicinity of the project sites and along the truck route that would be used by EH&S Expansion project-related trucks include single-family residential uses to the north of Watkins Drive beyond the railroad right-of-way, to the north of Blaine Street, and to the east of Valencia Hill Drive. Residential uses exist across Watkins Drive beyond the railroad right-of-way directly north of the proposed EH&S Expansion and Parking Lot 27 project site. Existing noise-sensitive land uses on the campus near the site or along the EH&S Expansion related truck route include the Glen Mor 1 Student Apartments and Pentland Hills student housing complexes located to the south of Linden Street, the UCR Child Development Center on Watkins Drive near Blaine Street, and the Canyon Crest Family Housing complex located on the south side of Blaine Street.

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<sup>3</sup> The logarithmic effect of adding these penalties to the peak-hour  $L_{eq}$  measurement results in a CNEL measurement that is within approximately 3 dBA (plus or minus) of the peak-hour  $L_{eq}$ . California Department of Transportation, *Technical Noise Supplement; A Technical Supplement to the Traffic Noise Analysis Protocol*, October 1998, pp. N51-N54.

#### 4.7.2.4 Existing Noise Levels

##### *Existing Roadway Noise Levels*

The 2005 LRDP EIR included estimates of the existing ambient noise levels for the roadways on and near the East Campus based on average daily trips provided in the traffic study prepared for the 2005 LRDP EIR.<sup>4</sup> The traffic noise was modeled using the Federal Highway Administration Highway (FHWA) Highway Noise Prediction Model (FHWA-RD-77-108). The estimated noise levels are presented in **Table 4.7-3, 2005 Roadway Modeled Noise Levels**. As shown, the modeled roadway noise levels for roadways in the vicinity of the proposed EH&S Facility Expansion site range from a low of 61.9 dB(A) CNEL on Watkins Drive south of Blaine Street to a high of 68.6 dB(A) CNEL along Iowa Avenue south of Linden Street. It should be noted that actual noise levels along these roadways are likely higher than the modeled levels due to the contribution of noise from other non-traffic sources. However, traffic is the dominant noise source in the area.

**Table 4.7-3  
2005 Roadway Modeled Noise Levels**

Roadway Segment/Intersection	CNEL at 75 Feet	Distance to Noise Contour <sup>a</sup>		
		70 CNEL	65 CNEL	60 CNEL
<b>Watkins Drive</b>				
South of Blaine Street	61.9	-- <sup>b</sup>	47	101
North of Gernert Road	62.5	-- <sup>b</sup>	78	110
<b>Canyon Crest Drive</b>				
South of Blaine Street	64.2	-- <sup>b</sup>	67	143
South of Pearblossom Drive	67.3	50	107	231
<b>Iowa Avenue</b>				
South of Linden Street	68.6	61	131	282
<b>Blaine Street</b>				
East of Iowa Avenue	65.3	-- <sup>b</sup>	79	170

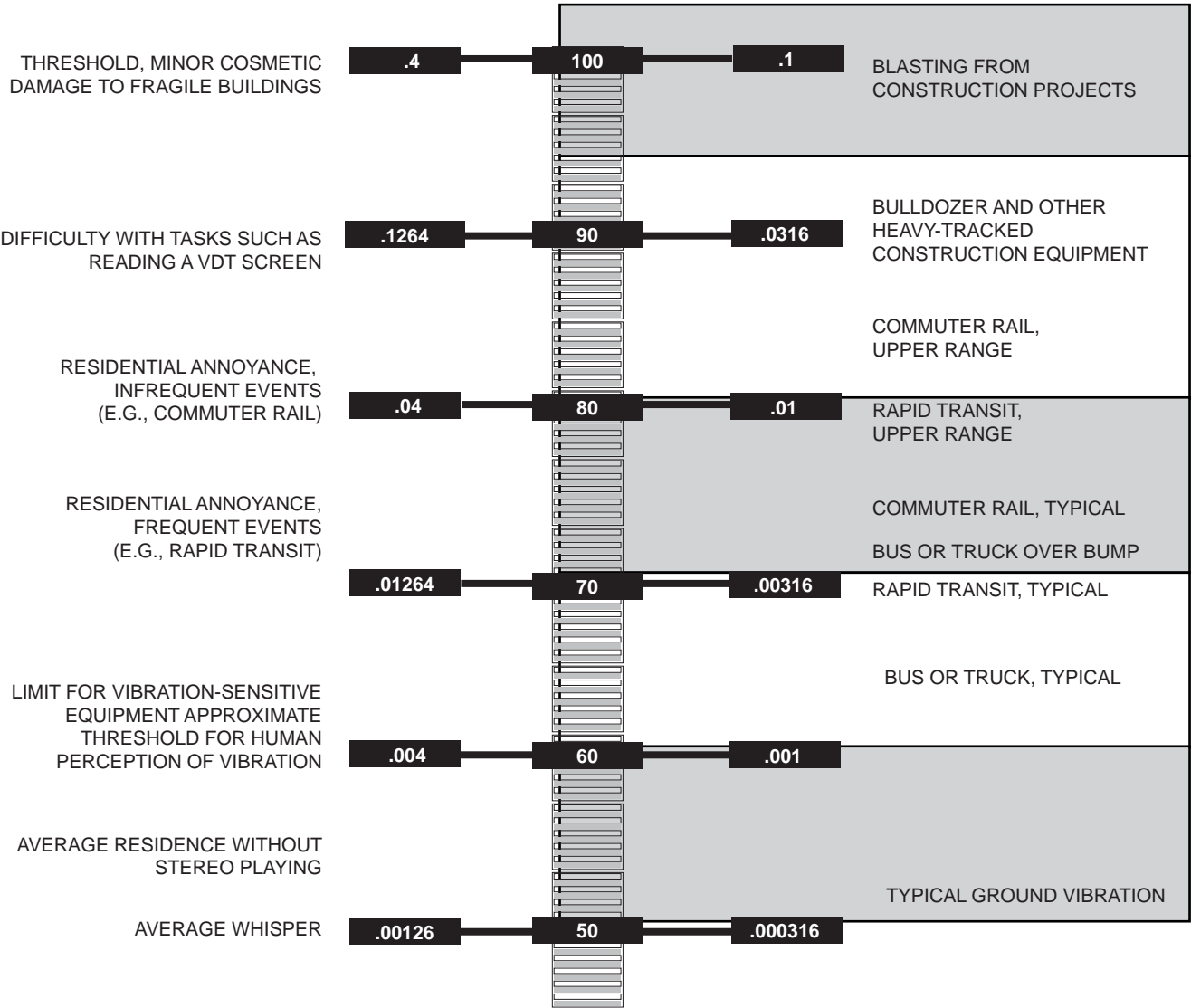
Source: 2005 LRDP EIR.

<sup>a</sup> Distances are in feet from roadway centerline. The identified noise level at 75 feet from the roadway centerline is for reference purposes only as a point from which to calculate the noise contour distances. It does not reflect an actual building location or potential impact location.

<sup>b</sup> Noise contour is located within the roadway right-of-way.

<sup>4</sup> The 2005 LRDP Amendment 2 EIR did not report noise levels on the East Campus because LRDP Amendment 2 did not include any changes to land uses planned for the East Campus.

HUMAN/STRUCTURAL RESPONSE	PPV AMPLITUDE IN INCHES <sup>1</sup> PER SECOND	VELOCITY LEVEL IN VdB	RMS VELOCITY AMPLITUDE IN <sup>2</sup> INCHES/SECOND	TYPICAL SOURCES 50 FEET FROM SOURCE
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<sup>1</sup> PPV is typically a factor 1.7 to 6 times greater than RMS vibration velocity. A factor of 4 was used to calculate noise levels.

<sup>2</sup> Vibration levels in terms of velocity levels are defined as:  $V=20 \times \log_{10} (a/r)$   
 V=velocity levels in decibels  
 a=RMS velocity amplitude  
 r=reference amplitude (accepted reference quantities for vibration velocity are  $1 \times 10^{-6}$  inches/second in the United States)

FIGURE 4.7-2

## Typical Levels of Ground-Borne Vibration



### *Railroad Noise*

The BSNF railroad tracks are located along the northern border of the East Campus, across Watkins Drive from the EH&S Facility Expansion and Parking Lot 27 project site, and produce noise from train pass-bys. Noise measurements taken at 396 East Big Springs Road, located 0.5 mile to the northeast of the campus, and at 277 Nisbet Way, located approximately 500 feet to the east of the campus, range from 54 dB(A) at 125 feet from the tracks to 62 dB(A) at 90 feet from the tracks, respectively (RCTC 2010).

### *Construction Noise*

Construction of new facilities occurs on an ongoing basis on the UCR campus. Noise is generated daily by these activities, although it is primarily isolated in the immediate vicinity of each construction site. The actual noise levels generated by construction vary by site and on a daily and hourly basis, depending on the activity that is occurring and the types and number of pieces of equipment that are operating.

Equipment used during construction generates both steady state and episodic noise that would be heard both on and off campus. The US Department of Transportation has compiled data regarding the noise-generating characteristics of specific types of construction equipment; these are presented in **Figure 4.7-3, Noise Levels of Typical Construction Equipment**. As shown, noise levels generated by heavy equipment can range from approximately 73 dB(A) to noise levels in excess of 80 dB(A) when measured at 50 feet.

## **4.7.2.5 Existing Campus Noise Controls**

### *Stationary Source Noise Controls*

UCR implements numerous programs to reduce on-campus noise levels and motor vehicle trips (thereby reducing associated off-campus noise levels). These programs are discussed below.

### *Stationary Source Noise Controls*

In order to provide a relatively quiet environment on the campus that is conducive to the educational process, and in compliance with campus Practices and Programs (PPs) and Planning Strategies (PSs), noise-generating uses such as truck access, parking areas, mechanical heating and ventilation, and refrigeration units are designed and evaluated when planning specific individual new facilities to minimize the potential for noise impacts to adjacent land uses. Applicable PPs and PSs are discussed in **Subsection 4.7.4.4**, below. In addition, building setbacks, building design, and site orientation are used to reduce intrusive noise at sensitive student residential and educational building locations near main campus access routes.

### *Land Use Buffering*

UCR includes landscaped buffers along the east edge of the East Campus and the south edge of the West Campus (Valencia Hill Drive Landscape Buffer Area and Martin Luther King Boulevard Landscape Buffer Area, respectively). These buffers maintain setbacks between on-campus uses and the surrounding area and provide an acoustically soft environment to reduce noise levels. They also reduce the effect of noise generated in the surrounding area (primarily roadway noise) on the campus. Likewise, they reduce the noise levels in the surrounding area due to noise generated on the campus.

### *Construction Noise Controls*

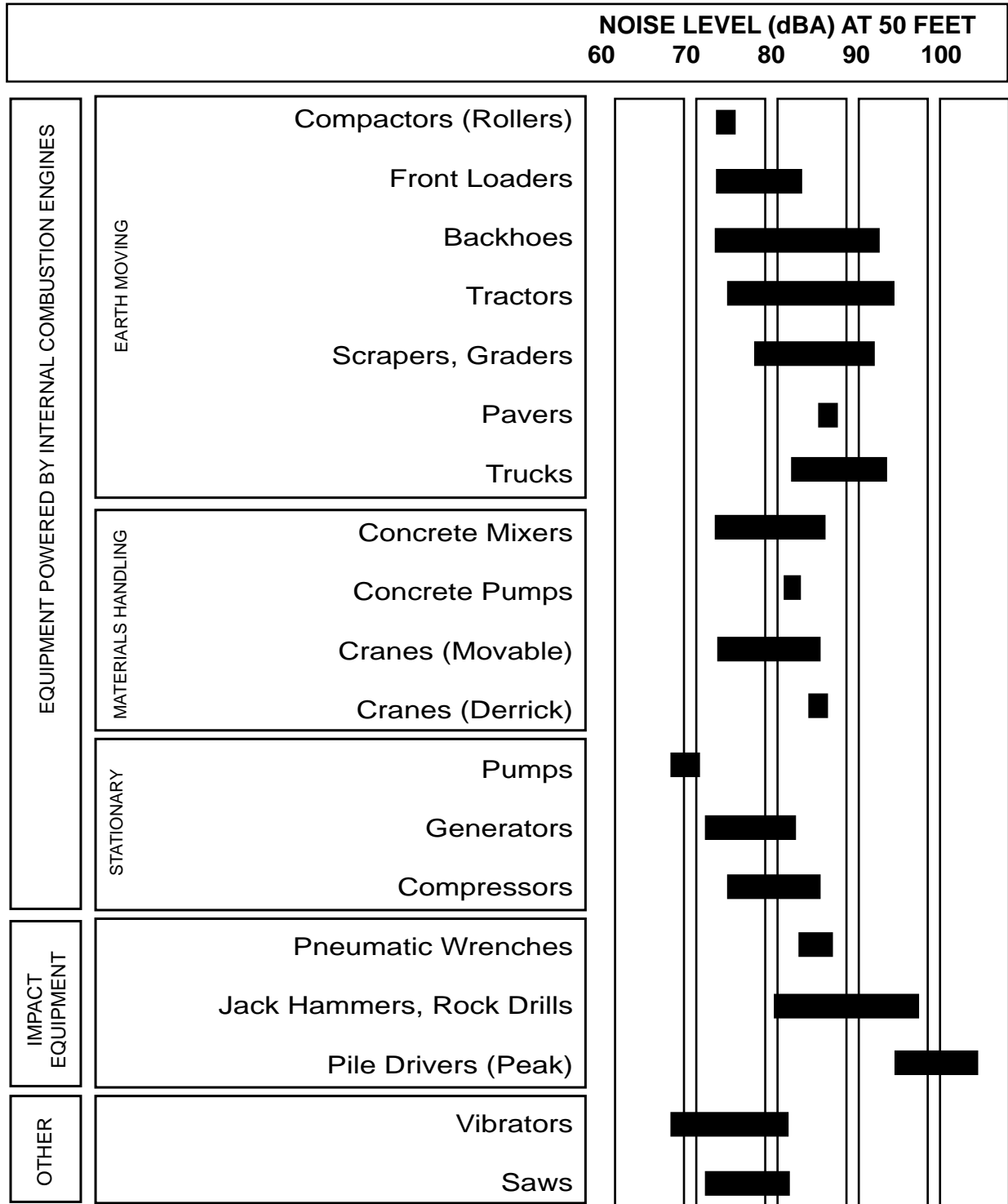
UCR limits the hours of exterior construction activities from 7:00 AM to 9:00 PM Monday through Friday and 8:00 AM to 6:00 PM on Saturday (LRDP Amendment 2 PP 4.10-1(a)). Transportation routes are established for each construction project to minimize the impacts of construction traffic (including noise impacts) on the surrounding community.

### *Vehicular Traffic Noise Controls*

UCR is served by several modes of alternative transportation, including public bus services. UCR also implements an Alternative Transportation program that facilitates and promotes the use of transit, carpools, vanpools, and bicycling. The goal of the program is to reduce the total number of vehicle trips made to campus by faculty, staff, and students. Program-related services are available to UCR faculty, staff, and students. While transportation programs are not implemented specifically to reduce noise levels, they do have the positive effect of reducing the number of motor vehicle trips that might otherwise be generated in association with UCR. By reducing the number of potential motor vehicle trips, the potential noise levels that could be experienced in the surrounding vicinity are, likewise, reduced.

## **4.7.2.6 Existing Groundborne Vibration Environment**

The primary regular sources of groundborne vibration at the campus and within the immediate vicinity are construction activities, roadway truck traffic, and train pass-bys along the railroad tracks located along the northern border of the East Campus. (Seismic events also cause vibration, but occur sporadically and are unpredictable in nature.) **Table 4.7-4, Vibration Levels for Construction Equipment**, identifies various vibration velocity levels for the types of construction equipment that is used on campus.



NOTE: Based on limited available data samples.

SOURCE: United States Environmental Protection Agency, 1971, "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," NTID 300-1

FIGURE 4.7-3

## Noise Levels of Typical Construction Equipment

**Table 4.7-4  
Vibration Levels for Construction Equipment**

Equipment	Approximate VdB			
	25 Feet	50 Feet	75 Feet	100 Feet
Large Bulldozer	87	81	77	75
Loaded trucks	86	80	76	74
Jackhammer	79	73	69	67
Small Bulldozer	58	52	48	46

*Source: Federal Railroad Administration, 2005.*

Heavy trucks that transport materials to and from the construction sites within the campus typically generate groundborne vibration velocity levels of around 63 VdB. These levels can reach 72 VdB where trucks pass over bumps in the road. Based on measurements taken at 396 East Big Springs Road, train pass-bys on the BNSF railroad tracks north of the campus produce on average a vibration level of 58 VdB at a distance of 50 feet from the tracks (RCTC 2010).

### **4.7.3 REGULATORY FRAMEWORK**

#### **4.7.3.1 Federal**

There are no federal noise standards that are applicable to the UCR campus.

#### **4.7.3.2 State**

Title 24 of the California Code of Regulations codifies Sound Transmission Control requirements, which establish uniform minimum noise insulation performance standards for new hotels, motels, dormitories, apartment houses, and dwellings other than detached single-family dwellings. Specifically, Title 24 states that interior noise levels attributable to exterior sources shall not exceed 45 dB(A) CNEL in any habitable room of new dwellings. Dwellings are to be designed so that interior noise levels will meet this standard for at least 10 years from the time of building permit application. This standard applies to all new student housing developed on the UCR campus.

## 4.7.4 PROJECT IMPACTS AND MITIGATION MEASURES

### 4.7.4.1 Significance Criteria

The impacts related to noise from the implementation of the proposed projects and related projects would be considered significant if they would exceed the following Standards of Significance, in accordance with Appendix G of the *State CEQA Guidelines* and the UC CEQA Handbook:

- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinances, or applicable standards of other agencies;
- Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- Expose persons to or generate excessive groundborne vibration or groundborne noise levels;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airstrip, expose people residing or working in the project area to excessive noise levels; or
- For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

The State standard for interior noise levels within new dwellings other than detached single-family dwellings, such as student housing, is 45 dB(A) CNEL.

The CEQA Guidelines do not define the levels at which temporary and permanent increases in ambient noise are considered “substantial.” For the purposes of this analysis, noise impacts would be considered significant if the project resulted in the following:

- Construction activities lasting more than one day that increase the ambient noise levels by 10 dB(A) Leq or more over a 1-hour period at any on-campus or off-campus noise-sensitive location.
- A permanent (i.e., long term operational) increase of 5 dB(A) CNEL over ambient noise levels at any on-campus or off-campus noise-sensitive land use.
- A permanent (i.e., long term operational) increase of 3 dB(A) CNEL over ambient noise levels at any on-campus or off-campus noise-sensitive land use location where the future resulting noise level would exceed 70 dB(A) CNEL (i.e., the noise levels would be considered unacceptable for noise-sensitive uses by most public agencies).

The *State CEQA Guidelines* also do not define the levels at which groundborne vibration or groundborne noise is considered “excessive.” This analysis uses the Federal Railroad Administration’s (FRA) vibration impact thresholds for sensitive buildings, residences, and institutional land uses.<sup>5</sup> These thresholds are 65 VdB at buildings where vibration would interfere with interior operations (e.g., sensitive on-campus research buildings), 80 VdB at residences and buildings where people normally sleep (e.g., student housing buildings and nearby residences), and 83 VdB at other institutional buildings (FRA 2005).

#### 4.7.4.2 CEQA Checklist Items Adequately Addressed in the Initial Study

The analysis in the Initial Study prepared for the proposed projects and related projects and circulated with the NOP concluded that further analysis of the following issues was not required in the EIR:

- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airstrip, expose people residing or working in the project area to excessive noise levels
- For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels

The Initial Study for the proposed projects noted that the EH&S Expansion and Parking Lot 27 project site, as well as the related project sites at the Corporation Yard and existing EH&S facility, are not located within the boundaries of any airport land use plan and are more than 2 miles from the nearest public airport. These sites are not located within the vicinity of a private airstrip. Therefore, implementation of the proposed projects and related projects would not be affected by operation of a public airport or private airstrip. These issues are not discussed further in the analysis below.

#### 4.7.4.3 Methodology

The analysis in this section focuses on the nature and magnitude of the potential change in the noise environment due to development of the proposed projects and related projects. The primary sources of noise associated with the proposed projects would be construction activities and project-related traffic. Noise levels associated with anticipated construction activities are identified for locations within and around the project site and are compared with thresholds to determine whether temporary or periodic noise impacts would occur. Noise levels associated with construction and on-site equipment and activities are discussed quantitatively, as well as qualitatively with regard to the minor redistribution of traffic that would result from implementation of the proposed projects and related projects. These projected noise levels are compared with standards of significance to determine whether substantial

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<sup>5</sup> The thresholds are for infrequent events which are defined as fewer than 70 vibration events per day.

permanent increases in ambient noise levels would occur. Future noise levels within the vicinity of the project site have also been identified to assess the compatibility of the proposed projects and related projects with the existing noise environment.

#### **4.7.4.4 Relevant LRDP Mitigation Measures, Planning Strategies, and Programs and Practices**

The 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR (2011) identify a series of PSs and PPs that are relevant to noise and also include Mitigation Measures (MM) to reduce impacts of buildout of the campus under the 2005 LRDP as amended. These measures are considered part of the proposed projects and related projects for purposes of this analysis. The full list of PSs, PPs, and LRDP MMs is included in **Appendix 1.0** of this EIR, and those relevant to noise impacts of the proposed projects and related projects are provided in each impact discussion below.

#### **4.7.4.5 Project Impacts and Mitigation Measures**

**Impact 4.7-1                    Implementation of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and the related projects would generate some additional traffic on local streets, but would not expose on and off-campus sensitive land uses to traffic-related noise levels in excess of the applicable noise standards or cause a substantial permanent increase in noise levels at on- or off-campus locations. This impact would be less than significant.**

##### *Proposed Projects*

The construction of the proposed EH&S Expansion would increase the square footage of the facility by about 20,000 gross square feet compared to the existing facility and would result in an increase of about 8 full-time equivalent employees compared to existing levels. This would result in additional vehicular traffic on and around the campus, which in turn could increase ambient noise levels. However, the Campus would implement the following PP to further reduce campus-related vehicular traffic, including the traffic associated with the additional employees at the proposed EH&S Expansion:

PP 4.10-5(b)                    The Campus shall continue to implement an Alternative Transportation program that facilitates and promotes the use of transit, carpools, vanpools, and bicycling.

The Alternative Transportation program reduces the number of motor vehicle trips for campus employees. Implementation of PP 4.10-5(b) would ensure that motor vehicle trips to and from the campus and the associated noise levels are reduced to the maximum extent feasible.

Implementation of the proposed EH&S Expansion project would also result in some redistribution of waste-hauling vehicle trips within the campus. EH&S vehicles collect waste daily from around the campus and transport it to the EH&S facility. With the project, these trips would transport the waste to the new facility using the Linden Street (on-campus) driveway into the secure EH&S yard to reach the loading dock. Therefore, under the proposed EH&S Expansion project, waste-hauling trips to and from the EH&S Expansion facility would occur along different roadways on campus as compared to the trips associated with the existing EH&S facility. As a result, several locations on campus could experience slight changes in noise levels from the redistributed traffic, with a corresponding decrease at other locations. As discussed in **Subsection 4.7.2** above, it generally requires a doubling in the volume of traffic on a roadway for noise levels to increase by 3 dB, which is the change in noise that is perceptible to most individuals. The redistributed and new trips would be on the order of a few trips per day at most, which would be well within the normal daily variability in traffic and far below the change in traffic needed to cause an increase in noise levels greater than 5 dB(A) CNEL. Any increase in average noise levels would be too small to be audible or perceptible to most people. There would thus be no significant increase in on-campus noise levels due to the EH&S Expansion project.

In addition to internal campus trips, the waste-hauling truck trips would be rerouted from the existing EH&S facility to the new location. Hazardous waste removal contractors would use the Watkins Drive access gate into the secure EH&S yard approximately 14 to 19 times per year to reach the loading dock at the new EH&S Expansion facility and would depart by the same route. Because fewer than 20 such trips would occur per year, these rerouted trips would not result in a perceptible increase in average noise levels along Watkins Drive and Blaine Street.

Because the roadway noise levels at all on- and off-campus locations would not increase by more than 5 dB(A) CNEL, the proposed EH&S Expansion project would not generate increased local traffic volumes that cause a substantial permanent increase in ambient noise levels on- or off-campus and the project would not expose persons off and on-campus to noise levels above applicable standards. The impact would be less than significant.

As noted above, a comment received during public scoping requested analysis of truck noise due to starting and stopping at traffic controls, especially at the intersection of Valencia Hill Drive and Watkins Drive. Hazardous waste is removed from the campus via public roadways approximately 6 times per year, and these trips could increase to approximately 14 to 19 per year by 2020. Neither waste-hauling trucks leaving the proposed EH&S Expansion project site nor other project-related traffic would be routed through the intersection of Valencia Hill Drive and Watkins Drive. Although noise from vehicle stopping and acceleration could be noticeable to residents near intersections along the waste hauling route, the noise increase would be of short duration (a few seconds per truck) and the trips would occur



very infrequently. Therefore the impact would be less than significant. As discussed in **Section 4.4, Hazards and Hazardous Materials**, in compliance with **Mitigation Measure 4.4-1**, drivers would be provided with a specified truck route and directions to the facility; this would keep EH&S Expansion related off-campus truck traffic from using non-designated routes and minimize the possibility of those trucks inadvertently using other local streets.

The proposed Parking Lot 27 project would not increase campus population or related vehicle trips. A minor redistribution of vehicle trips would be associated with the new parking lot. Many of the vehicles using the new parking lot would likely be those already traveling to the immediate project vicinity and parking on Watkins Drive or in other nearby campus lots. All vehicles accessing the parking lot would enter and exit via a driveway on Linden Street. The very small potential increase in daily vehicle trips on Linden Street or other on-campus roadways would not be great enough to cause an increase in average noise levels that would be audible or perceptible to most people because, as noted earlier, it takes a doubling of traffic to result in a 3 decibel increase in noise levels and increases that are less than 3 decibels are not perceptible to most individuals. There would thus be no significant increase in on-campus noise levels due to traffic associated with the proposed Parking Lot 27 project.

#### ***Related Projects***

The reorganization of the Corporation Yard and relocation of the Mail Services and Printing & Reprographic operations would cause a redistribution of existing vehicle trips, but would not in themselves generate new trips. Therefore, they would not increase traffic near on-campus or off-campus sensitive land uses. Implementation of the related projects thus would not result in the exposure of persons to or generation of noise levels in excess of established standards for sensitive land uses or result in a substantial permanent increase in ambient noise levels. This impact would be less than significant.

**Mitigation Measures:** No mitigation is required.

**Impact 4.7-2                    Implementation of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and the related projects would add new area and stationary-source noise, but would not cause a substantial permanent increase in ambient noise levels on- or off-campus. The impact would be less than significant.**

### *Proposed Projects*

#### **On-Campus Receptors**

Mechanical heating, ventilation, and air conditioning (HVAC) equipment would be located on the rooftop of the proposed EH&S Expansion facility. The type of equipment currently installed on new buildings within the campus generates noise levels that average around 66 dB(A) Leq on the air inlet side and 62 dB(A) Leq on the other sides when measured at 50 feet from the source. As discussed previously in this section, 24-hour CNEL noise levels are about 6.7 dB(A) greater than 24-hour Leq. This means that this equipment could generate noise levels that average 69 to 73 dB(A) CNEL at 50 feet when the equipment is operating constantly for 24 hours. Based on observations of the existing HVAC equipment at existing campus buildings, the shielding installed around all new equipment at the campus reduces these noise levels by at least 15 dB(A). Therefore with shielding, noise from EH&S Expansion project HVAC equipment would not produce noise levels over 70 dB(A) CNEL at 50 feet, and this noise would not adversely affect the nearest on-campus housing which is approximately 300 feet from the project site.

Most of the operational activities at the proposed EH&S Expansion would occur indoors and would not contribute significantly to ambient noise levels. Therefore, in addition to the HVAC equipment discussed above, the only other on-site new noise sources would be loading and unloading activity at the EH&S Expansion loading dock and general human activity on the site. Some noise would result from loading and unloading activities. However, the loading dock would face towards the Corporation Yard and would be shielded on the east by the EH&S Expansion building, on the south by the EH&S Expansion building and the Transportation and Parking Services building, on the north by an 8-foot-high block wall, and partially on the west by Corporation Yard buildings. In addition, the loading dock would be separated from on-campus residences to the south by approximately 300 feet.

Furthermore, to minimize noise from all stationary and area sources associated with the proposed EH&S Expansion project, the Campus would implement the following campus PPs which are included in and a part of the proposed project:

PP 4.10-1(a)                    UCR will incorporate the following siting design measures to reduce long-term noise impacts:

- (i) Truck access, parking area design, and air conditioning/refrigeration units will be designed and evaluated when planning specific individual new facilities to minimize the potential for noise impacts to adjacent developments.
- (ii) Building setbacks, building design and orientation will be used to reduce intrusive noise at sensitive student residential and educational building locations near main campus access routes, such as Blaine Street, Canyon Crest Drive, University Avenue, and Martin Luther King Jr. Boulevard. Noise walls may be advisable to screen existing and proposed facilities located near the I-215/SR-60 freeway.
- (iii) Adequate acoustic insulation would be added to residence halls to ensure that the interior Ldn would not exceed 45 dB(A) during the daytime and 40 dB(A) during the nighttime (10:00 PM to 7:00 AM) in rooms facing major streets.
- (iv) Potential noise impacts would be evaluated as part of the design review for all projects. If determined to be significant, mitigation measures would be identified and alternatives suggested. At a minimum, campus residence halls and student housing design would comply with Title 24, Part 2 of the California Administrative Code.

PP 4.10-6                      The Campus shall continue to shield all new stationary sources of noise that would be located in close proximity to noise sensitive buildings and uses.

With the shielding and screening discussed above, the EH&S Expansion project would not result in a substantial permanent increase in ambient noise levels on campus above existing levels.

Parking Lot 27 would add some noise from vehicles entering and exiting the lot. However, these would be trips rerouted from other parking locations rather than new trips that would generate an increase in overall noise levels, and it is likely that some vehicles drivers currently parking on Watkins Drive would use the new lot instead. In addition, access to the new parking lot would be from Linden Street, moving traffic away from Watkins Drive. Parking Lot 27 would include a fence along the Watkins Drive edge of the lot, encouraging users to park in the lot rather than on the City street. Parking Lot 27 would not include any stationary noise sources. Because of the small size of the lot and the small number of redistributed trips that would result, Parking Lot 27 would not substantially increase ambient noise levels. The impact would be less than significant.

### **Off-Campus Receptors**

The nearest existing off-campus residences to the proposed projects are single-family homes located to the north of Watkins Drive and a railroad track and Department of Water Resources 100-foot easement,

which results in the closest residences being approximately 230 feet from the EH&S Expansion and Parking Lot 27 project site. Residences east of the campus are separated from the proposed projects by Valencia Hill Drive and a 100-foot landscaped buffer running the length of the Valencia Hill Drive boundary, and the east end of the proposed Parking Lot 27 includes an additional setback. Parking stalls and a driving lane at the eastern end of the lot would be located approximately 230 feet from the nearest houses along Valencia Hill Drive.

New stationary equipment (HVAC) at the EH&S Expansion would be located at least 230 feet from any off-campus uses and would be separated from these uses by an 8-foot block wall, landscaping along the project frontage, and existing roadways and easements. As discussed above, stationary equipment at the EH&S Expansion could generate noise levels that average 69 to 73 dB(A) CNEL at 50 feet when the equipment is operating. With shielding, noise levels generated by stationary equipment would be reduced by 15 dB(A), thus resulting in an average of 54 to 58 dB(A) CNEL at 50 feet. As discussed above, sound generated by a point source typically attenuates at a rate of 6.0 dB(A) for each doubling of distance from the source to the receptor. Thus, at 100 feet, new stationary equipment would average 48 to 52 dB(A) CNEL, while at 200 feet, new stationary equipment would average 42 to 46 dB(A) CNEL. Existing modeled roadway noise along the edge of the campus near the proposed project site ranges from 61.9 to 68.6 dB(A) CNEL (UCR 2005). Therefore, noise from the proposed EH&S Expansion project's stationary sources would be substantially lower than existing modeled noise levels at the nearest off-campus receptors and a substantial increase of 5 dB(A) or more at the nearest off-campus receptors would not occur.

Furthermore, as part of the proposed projects, the Campus would implement the following PS as well as PP 4.10-6 (discussed above), which would reduce potential impacts associated with new stationary noise sources:

PS Campus and Community 1 Provide sensitive land use transitions and landscaped buffers where residential off campus neighborhoods might experience noise or light from UCR activities.

As described above, the loading dock would face away from the existing off-campus residences, which are located approximately 250 feet from the dock location. This distance would substantially attenuate any noise generated by activity at the loading dock.

As described above, the proposed Parking Lot 27 would add some noise from vehicles entering and exiting the lot, as well as from vehicle movement within the parking lot, vehicle start-ups, and occasional car alarms. However, for the reasons discussed above under "On-campus Receptors" and intervening distance between the majority of the parking spaces and the nearest off-campus residences, Parking Lot

27 would not substantially increase ambient noise levels at off-campus receptors. The impact would be less than significant.

With implementation of the PSs and PPs that are a part of the proposed projects, provision of the equipment shielding and screening of the loading dock described above, and the attenuation provided by the distance between on-site stationary and area noise sources and the nearest off-campus receptors, the proposed projects would not result in a substantial permanent increase in ambient noise levels at off-campus locations.

### *Related Projects*

The reorganization of the Corporation Yard would include demolition of a warehouse building and the Mail Services building and construction of a warehouse and storage/activity areas similar to those already present on site. The replacement warehouse building could have mechanical HVAC equipment that would generate noise. As with the proposed projects, consistent with PP 4.10-6, this equipment would be required to have shielding to reduce noise levels. Other activities at the Corporation Yard site would be similar to those occurring now and would not cause an increase in stationary and area noise above existing conditions. Impacts related to a substantial permanent increase in ambient noise levels from stationary and area sources would be less than significant.

The relocation of the Mail Services and Printing & Reprographic operations to the existing EH&S facility would not involve any changes in stationary and area noise sources, and there would be no impact from this related project.

**Mitigation Measures:** No mitigation is required.

**Impact 4.7-3**                    **Construction of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and the related projects could result in substantial temporary or periodic increases in ambient noise levels at certain sensitive uses in the project vicinity. This impact would be significant.**

### *Proposed Projects*

The basic types of activities that would be expected to generate noise during construction of the proposed EH&S Expansion and Parking Lot 27 projects are demolition and site clearance, grading and excavation, building construction, and landscaping. During each stage of construction, there would be a different mix of equipment operating and noise levels would vary based on the number and type of equipment in operation and the location of the activity. The potential noise levels associated with typical construction

equipment and outdoor construction activities were identified in **Figure 4.7-3**. On- and off-campus residential buildings are located about 300 and 230 feet respectively from the proposed project site. Daytime construction noise levels could temporarily reach above 95 dB(A) at 50 feet from the source, as identified in **Figure 4.7-3**. As discussed above, sound generated by a point source typically attenuates at a rate of at least 6 dB(A) for each doubling of distance from the source to the receptor. Therefore, noise levels at the nearest residential buildings could periodically reach 83 dB(A) during project construction. This is an increase of more than 10 dB(A) Leq over the existing daytime noise levels at the affected locations, which would include the nearest residences located across Watkins Drive to the north (potentially all of the residences on the south side of W. Campus View Drive between Maravilla Drive and approximately 200 feet east of Valencia Hill Drive, as well as the residences on Valencia Hill Drive between Watkins Avenue and Goins Court) and Buildings L, M, and N of the Pentland Hills campus housing complex. Therefore, construction noise levels could substantially increase existing noise levels at residential uses on and off campus. This would be a significant impact.

As part of the proposed projects, the Campus will implement the following campus PPs that would reduce potential impacts associated with construction noise:

- PP 4.10-7(a) To the extent feasible, construction activities shall be limited to 7:00 AM to 9:00 PM Monday through Friday, 8:00 AM to 6:00 PM on Saturday, and no construction on Sunday and national holidays, as appropriate, in order to minimize disruption to area residences surrounding the campus and to on-campus uses that are sensitive to noise.
- 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. Contracts shall specify that engine-driven equipment be fitted with appropriate noise mufflers.
- 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 on-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.
- PP 4.10-8 The Campus shall continue to conduct meetings, as needed, with off-campus constituents that are affected by campus construction to provide advance notice of construction activities and ensure that the mutual needs of the particular construction project and of those impacted by construction noise are met, to the extent feasible.

Although the implementation of the campus PPs would reduce construction-related noise, the Campus cannot ensure that construction noise levels would not increase by less than 10 dB(A) Leq or more over a 1-hour period at noise-sensitive uses located in close proximity to the construction site. Therefore, the proposed projects could result in a substantial periodic increase in ambient noise levels in the project vicinity above existing levels. This impact would be significant.

### *Related Projects*

Construction activities that would occur as part of the Corporation Yard reorganization would be generally similar to those described for the proposed projects above, although they would be smaller in scale and shorter in duration because of the smaller building (5,400 gsf) that would be constructed. However, they would involve demolition of existing structures, an activity that is not part of the proposed projects. Daytime noise levels from demolition and new construction could temporarily exceed 95 dB(A) at 50 feet from the source. The Corporation Yard project site is located approximately 200 feet from the nearest on-campus and off-campus residential buildings, and noise levels at the nearest residential buildings could increase by more than 10 dB(A) Leq over the existing daytime noise levels at these locations. Therefore, construction noise levels at the Corporation Yard could substantially increase existing noise levels at residential uses on and off campus. UCR PPs discussed above would also be applicable to construction at the Corporation Yard and would reduce construction-related noise; however, they would not ensure that construction noise levels do not increase by more than 10 dB(A) Leq at noise sensitive uses located in close proximity to the construction sites. Therefore, the related Corporation Yard reorganization project could result in a substantial periodic increase in ambient noise levels in the project vicinity above existing levels. This would be a significant impact.

There would be no exterior construction activity at the existing EH&S facility. Renovation would be limited to building interiors and noise would be substantially shielded by the building walls. In addition, there are no sensitive receptors located near this site. For these reasons, the related project for reuse of this facility would have a less than significant impact related to construction noise.

**Mitigation Measures:** PPs 4.10-7 and 8 include the full suite of noise control measures that are available to control construction noise. No other mitigation is feasible.

**Significance after Mitigation:** The impact would be significant and unavoidable.

**Impact 4.7-4**                    **Construction associated with the proposed EH&S Expansion and Parking Lot 27 (proposed projects) and related projects would not expose persons on- or off-campus to excessive groundborne vibration levels. This impact would be less than significant.**

*Proposed Projects*

The proposed EH&S Expansion and Parking Lot 27 project site is located approximately 300 feet from the Glen Mor 1 student apartments and approximately 300 feet from the Pentland Hills resident community. At this distance, the vibration generated by typical construction equipment would be approximately 67 VdB and would fall below the FRA's 80 VdB vibration impact threshold for residential uses. The proposed projects would not involve pile driving.

The nearest existing off-campus residences to the project site are located approximately 230 feet north of the proposed project site. Residences east of the campus are separated from the project site by a 100-foot landscaped buffer running the length of the Valencia Hill Drive boundary of the campus and an additional setback that would separate Parking Lot 27 from the nearest residences by about 230 feet. Based on the information presented in **Table 4.7-4**, vibration levels from project construction activities would be 75 VdB or less at these residential uses.

Heavy trucks would continue to transport materials to and from the campus when construction activities occur. These trucks typically generate groundborne vibration levels of around 63 VdB. These levels could reach 72 VdB where trucks pass over bumps in the road. In both instances, the resulting groundborne vibration levels would be less than the FRA's 80 VdB vibration impact threshold for residential uses. Therefore, construction associated with the proposed projects would not expose off-campus persons along the truck route to excessive groundborne vibration levels, and this impact would be less than significant.

Furthermore, as part of the proposed projects, the Campus would implement PP 4.10-2 and LRDP MM 4.10-2, which would further reduce vibration effects.

PP 4.10-2                                    The UCR campus shall limit the hours of exterior construction activities from 7:00 AM to 9:00 PM Monday through Friday and 8:00 AM to 6:00 PM on Saturday when necessary. Construction traffic shall follow transportation routes prescribed for all construction traffic to minimize the impact of this traffic (including noise impacts) on the surrounding community.



MM 4.10-2                      The Campus shall notify all academic and residential facilities within 300 feet of approved construction sites of the planned schedule of vibration causing activities so that the occupants and/or researchers can take necessary precautionary measures to avoid negative effects to their activities and/or research.

### *Related Projects*

Construction activities that would occur as part of the Corporation Yard reorganization, although smaller in scale and shorter in duration, would be similar to those described for the proposed projects above and would also involve the use of construction equipment and construction trucks that could cause vibration. The Warehouse #2 replacement and other aspects of this related project would not involve pile driving. The campus PPs and LRDP MM discussed above would also apply to this project and would reduce potential impacts to a less than significant level.

The relocation of Mail Services and Printing & Reprographic operations would involve only interior modifications and would not result in increased vibration levels. There would be no impact.

**Mitigation Measures:** No mitigation is required.

### **4.7.4.6 Cumulative Impacts and Mitigation Measures**

**Impact 4.7-5                      Cumulative development, including the proposed EH&S Expansion and Parking Lot 27 (proposed projects) and the related projects, would cause a significant cumulative impact related to substantial permanent increases in ambient noise levels. The contribution of the proposed projects and related projects to this cumulative impact would be cumulatively considerable.**

### *Cumulative Impacts Related to Noise Standards*

The 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR (2011) found that implementation of the 2005 LRDP as amended would not make a cumulatively considerable contribution to the impact associated with exposure of persons to noise levels in excess of applicable standards. The proposed projects and related projects do not include new housing and would not place residents in an area where noise levels exceed State standards. Furthermore, as shown in **Impact 4.7-1** above, the proposed projects and related projects would cause an imperceptible increase in traffic noise along area roadways. Therefore, the projects would make a contribution to ambient noise levels along major roadways that would be cumulatively not considerable.

### *Cumulative Increases in Ambient Noise Levels along Study Area Roadways*

The 2005 LRDP EIR concluded that additional traffic on the study area roadway segments as a result of campus development under the 2005 LRDP would result in a significant cumulative impact as it would contribute to a substantial permanent increase in ambient noise levels along Blaine Street east of Iowa Avenue and Canyon Crest Drive; cumulative noise impacts along other area roadways, including Watkins Drive, would be less than significant. As described above, development of the proposed projects and related projects would add a small number of additional truck trips to study area roadways beyond that projected in the 2005 LRDP EIR. Because the truck route for the periodic waste removal trucks would be westward along Watkins Drive and Blaine Street to the I-215/SR-60 freeway, these additional trips would contribute to the significant cumulative noise impact along Blaine Street. The relatively few and infrequent trips would not make a cumulatively considerable contribution to the less than significant impact on Watkins Drive. Although these trips would be infrequent (14 to 19 per year), there is no feasible mitigation to reduce cumulative noise impacts along Blaine Street roadway segment, as the truck route is required to meet regulatory requirements and to reduce or avoid other potential impacts, and there is no feasible way to reduce truck trips substantially due to regulatory time limits that would apply to waste storage at the EH&S Expansion. The proposed projects' contribution to this significant and unavoidable impact would be cumulatively considerable.

Recent traffic studies and noise modeling for other campus projects indicates that traffic conditions and associated ambient noise conditions on and around the campus are generally consistent with those projected in the 2005 LRDP EIR, indicating that the analysis in the 2005 LRDP EIR regarding future traffic and noise levels in the vicinity of the East Campus remains valid (UCR 2011b).<sup>6</sup> The proposed projects and related projects therefore would not contribute to increased cumulative noise levels along study area roadways compared to the levels estimated and analyzed in the 2005 LRDP EIR and there would be no increase the severity of the previously analyzed cumulative impact.

### *Cumulative Increases in Ambient Noise Levels in Project Vicinity*

The analysis below focuses on the potential cumulative effects of the proposed projects and other reasonably foreseeable projects on off-campus residences to the north of Watkins Drive near the project site. Sources of noise that could potentially affect these receptors include vehicular traffic on Watkins Drive, noise from trains on the BNSF tracks, and general increases in noise levels from nearby stationary and area noise sources. The potential for each of these noise sources to affect these receptors and result in a significant cumulative impact is discussed below. In addition to the EH&S Expansion, Parking Lot 27, and the related Corporation Yard reorganization and existing EH&S buildings re-use projects, other

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<sup>6</sup> East Campus traffic noise levels were not reevaluated in the 2005 LRDP Amendment 2 EIR because Amendment 2 did not make any land use changes on the East Campus.

projects that are considered in this cumulative noise analysis include Glen Mor 2 Student Apartments (GM2) project, the Student Recreation Center Expansion, and the Health Sciences Teaching Center project, as well as the Perris Valley line project.

The noise analysis performed for the GM2 project analyzed that project's contribution to cumulative traffic noise for the year 2015. The analysis concluded that the GM2 project would not significantly increase cumulative traffic noise at on- or off-campus receptors. The GM2 project would add a minor amount of traffic to Watkins Drive that would not cause a substantial increase in noise along the roadway or at adjacent residences. Because of their location within the campus, the other campus projects (the Student Recreation Center Expansion and the Health Sciences Teaching Center) would not contribute a substantial amount of new traffic to Watkins Drive and would not significantly increase noise in this area. As discussed under **Impact 4.7-1** above, the proposed projects would result in a small increase in traffic and a corresponding minor increase in traffic noise. This increase would be imperceptible and well below significance thresholds, and would not make a cumulatively considerable contribution to the less than significant cumulative impact from increased traffic on Watkins Drive. This is consistent with the analysis in the 2005 LRDP EIR, which found a less than significant cumulative noise impact along Watkins Drive. As discussed under **Impact 4.7-2** above, due to screening and intervening distance, the proposed projects and related projects would not expose the residences on Watkins Drive to a substantial increase in noise from stationary or area sources. None of the other campus projects would be close enough to off-campus residences on Watkins Drive to result in increased noise levels from the stationary and area noise sources associated with these projects.

The Draft EIR for the Perris Valley Line project included an analysis of projected increased train noise from that project, which concluded that the rail project combined with other noise sources would cause a significant impact at several residential locations along Watkins Drive north of the EH&S Expansion and Parking Lot 27 project site. The impacts would primarily be caused by train horns sounding at the at-grade crossings along Watkins Drive. Sound barriers near the affected residential areas are proposed as mitigation for the Perris Valley Line project impacts. The Draft EIR for this project concluded that with mitigation, cumulative noise impacts would be less than significant (RCTC 2010).

In summary, although the Perris Valley Line project would elevate noise levels in the project vicinity, and the cumulative vehicular traffic on Watkins Drive would also elevate noise levels by a very small amount, the proposed projects' and related projects' contribution to noise levels along Watkins Drive would not be cumulatively considerable.

#### ***Cumulative Operational Impacts Related to Groundborne Noise and Vibration***

The only major source of groundborne noise or vibration during project operation is trains running on the nearby BNSF rail line along Watkins Drive. The Perris Valley project would increase the number and

frequency of trains along the rail line. None of the other foreseeable projects nor the proposed projects and related projects includes any activity or equipment that would produce groundborne noise or vibration in the long term. The proposed projects and related projects therefore would not contribute to cumulative groundborne noise and vibration impacts.

### *Conclusion*

In summary, the proposed projects and related projects would not result in cumulatively considerable contributions to cumulative operation noise impacts, with one exception. The proposed EH&S Expansion project's truck trips would make a cumulatively considerable contribution to a significant cumulative traffic noise impact on Blaine Street east of Iowa Avenue. Because there is no feasible way to reduce truck trips substantially, there is no feasible mitigation and this impact would remain significant.

**Mitigation Measures:** No mitigation is feasible.

**Significance after Mitigation:** The impact would be significant and unavoidable.

**Impact 4.7-6**                    **Cumulative development, including construction of the EH&S Expansion, Parking Lot 27 (proposed projects), and the related projects, would cause a significant cumulative impact related to temporary or periodic increase in ambient noise levels or groundborne vibration. The contribution of the proposed projects and related projects to this cumulative impact would be cumulatively considerable.**

### *Cumulative Construction Noise Impacts*

Cumulative construction noise and vibration impacts would occur if projects were under construction simultaneously and if these concurrent projects were in close proximity to the same sensitive receptor. Project construction could occur within the same timeframe as construction of four on-campus projects (the GM2 project, the Boyce Hall and Webber Hall Renovations, the Student Recreation Center Expansion, and the Health Sciences Teaching Center) and one off-campus project (the Perris Valley Line project, a portion of which is located near the project site). The area around the campus is relatively built out and there are no other planned or foreseeable on- or off-campus projects proposed near the project site that would be under construction the same time as the EH&S Expansion and Parking Lot 27.

The GM2 project is located approximately 700 feet south of the nearest portion of the Parking Lot 27 site. On-campus residences at Glen Mor 1 may receive combined noise from the EH&S Expansion and Parking Lot 27 projects and the GM2 project (UCR 2011b). The Student Recreation Center Expansion project is located approximately 0.3 mile from the EH&S Expansion project site, and it is unlikely that its

construction noise would affect the same receptors. The Health Sciences Teaching Center and the Boyce Hall and Webber Hall Renovations sites are located approximately 0.5 mile from the EH&S Expansion and Parking Lot 27 projects site and mainly involve interior construction; noise from those projects would not be noticeable at areas affected by EH&S Expansion and Parking Lot 27 construction noise. Construction on the Perris Valley Line project in the vicinity of the EH&S Expansion and Parking Lot 27 projects site would be limited to minor improvements to existing track and the erection of sound walls. However, due to their proximity, construction noise and vibration from these activities on the Perris Valley Line project would likely be noticeable at residences along Watkins Drive north of the proposed project site. The potential overlap of noise from the three projects (Perris Valley Line, GM2, and the proposed project) would contribute to a cumulative impact. As discussed under **Impact 4.7-3**, PPs 4.10-7 and 4.10-8 would apply but would not reduce the proposed projects' impact to a less than significant level. Because the proposed projects would result in significant construction noise impacts and there is no feasible mitigation that would reduce the impact to a less than significant level, the projects' contribution to the cumulative impact would be cumulatively considerable. The same construction noise impacts and impact conclusions would apply to the related Corporation Yard reorganization project.

There is also a potential for construction traffic associated with the EH&S Expansion and Parking Lot 27 (and related projects should they be constructed in the same timeframe) to use the same or overlapping haul routes as those used for the GM2 and Student Recreation Center Expansion projects. Traffic noise from construction vehicles could combine to affect sensitive receptors along the route, contributing to a cumulative impact. PP 4.14-2 requires the Campus to assess construction schedules of major projects to determine the potential for overlapping construction activities and adjust construction schedules, work hours, or access routes to the extent feasible. Compliance with this PP would minimize construction traffic noise from multiple projects and would reduce the potential cumulative impact to a less than significant level. It would also ensure that the projects' contribution to this impact would not be cumulatively considerable. This PP would also apply to the related projects, and would ensure that their impacts would not be cumulatively considerable.

#### ***Cumulative Impacts Related to Groundborne Noise and Vibration***

The major potential source of groundborne vibration from the proposed projects is construction activity; project construction will not result in any groundborne noise as it does not involve any activity that would produce groundborne noise. The cumulative projects with potentially overlapping construction schedules are listed above. The GM2 project EIR identified significant and unavoidable impacts related to groundborne vibration (UCR 2011b). However, this and the other on-campus construction projects are located more than 500 feet from the EH&S Expansion and Parking Lot 27 project site. This distance would make it unlikely that construction-related vibration caused by the cumulative projects would have a significant effect on the same receptors as could be affected by the EH&S Expansion and Parking Lot 27.

In addition, as discussed under **Impact 4.7-4** above, the proposed projects and related projects would not include pile-driving and would cause a minor amount of groundborne vibration that would not have a significant effect on the nearest sensitive receptors. Therefore, the cumulative vibration impact would be less than significant.

**Mitigation Measures:** PPs 4.10-7 and 8 include the full suite of noise control measures that are available to control construction noise. No other mitigation is feasible.

**Significance after Mitigation:** The impact would be significant and unavoidable.

## 4.8 TRANSPORTATION AND TRAFFIC

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### 4.8.1 INTRODUCTION

This section describes the existing transportation and traffic conditions at the UCR campus and analyzes the potential for implementation of the proposed Environmental Health & Safety (EH&S) Expansion, Parking Lot 27 (proposed projects), and related Corporation Yard reorganization and existing EH&S buildings re-use (related projects) to result in traffic and transportation impacts.

The information in this section is based on information in 2005 LRDP EIR and the Traffic Impact Analysis prepared for the 2005 LRDP Amendment 2 EIR by Fehr & Peers. Bibliographic entries for reference materials appear in **Section 8.0, References**.

In response to the Notice of Preparation (NOP) issued for this EIR, a member of the public requested that the EIR evaluate the effects of the related Corporation Yard reorganization project's demolition-phase truck traffic on nearby intersections and potential traffic and pedestrian hazards related to trucks turning on to Watkins Drive. These comments have been considered in the analysis presented below.

### 4.8.2 EXISTING CONDITIONS

#### 4.8.2.1 Project Study Area

For the purposes of this analysis, the study area for the projects is considered to be the East Campus, which is roughly bounded by Blaine Street to the north, Watkins Drive to the northeast, Valencia Hill Drive to the east, and I-215/SR-60 to the south and west, as well as adjacent off-campus areas (see **Figure 4.8-1, Project Study Area**). The proposed EH&S Expansion project site is located on the north side of Linden Street east of the Corporation Yard; it is also bordered by Watkins Avenue on the north and would have limited accessibility via that street. The adjacent Parking Lot 27 site is located east of the EH&S Expansion project site and extends east to the northwest corner of Watkins Drive and Valencia Hill Drive. Project traffic would be carried primarily by on-campus roadways (Linden Street, Aberdeen Drive, Canyon Crest Drive, Campus Drive, and Eucalyptus Drive) and two off-campus roadways (Watkins Drive and Blaine Street).

### 4.8.2.2 Project Study Intersections

Within the study area, the following intersections were selected as study intersections based on the likely approach and departure routes for the project traffic and their proximity to the proposed EH&S Expansion site:

1. Blaine Street/Iowa Avenue
2. Blaine Street/Rustin Avenue
3. Blaine Street/Canyon Crest Drive
4. Blaine Street/Watkins Drive
5. University Avenue/I-215 SB Ramp
6. University Avenue/I-215 NB Ramp

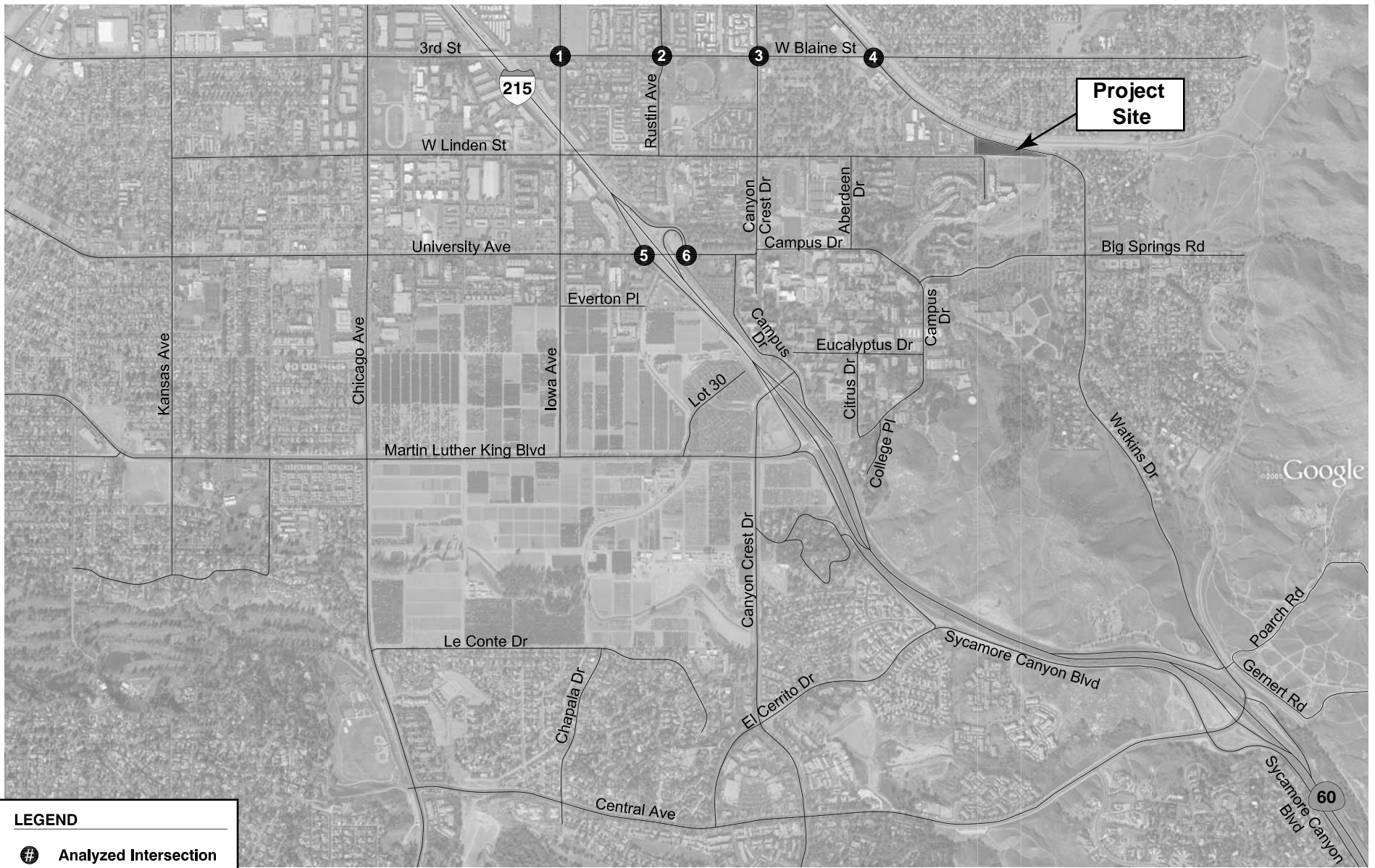
On-campus intersections between the University Avenue/I-215/SR-60 ramps were not selected as study intersections as all the intersections operate at satisfactory levels of service at this time and the addition of the small volume of project traffic would not adversely affect their operations. Similarly, the Blaine Street/I-215/SR-60 ramps were not included in the evaluation as the ramp intersections currently operate at satisfactory levels of service. With the exception of infrequent waste hauling truck trips, which would use the Watkins Drive driveway to reach the EH&S Expansion facility, all vehicular access to the EH&S Expansion facility and Parking Lot 27 would come from Linden Drive along internal campus roadways, and would therefore be unlikely to add trips along Watkins Drive east of the intersection of Blaine Street and Watkins Drive. A small number of trips from the east side of the campus could reach the project site by driving west on Watkins Drive and then Blaine Street, turning south on Canyon Crest Drive to reach Linden Street; however, this would be a roundabout route that is unlikely to be used in most circumstances, and such trips would not add substantial traffic to the roadway segments east of Blaine Street and Watkins Drive. Intersections east of Blaine Street and Watkins Drive were therefore not included in the study area.

The location of each study intersection is shown on **Figure 4.8-1**.

### 4.8.2.3 Analysis Methodologies

The evaluation presented below is based primarily on the traffic study performed for the 2005 LRDP Amendment 2 EIR. That study used a methodology based on empirical research conducted by the Transportation Research Board and other authorities. Information from the 2005 LRDP EIR was also used for comparison with current conditions as documented in the more recent traffic study.





**LEGEND**

# Analyzed Intersection



NOT TO SCALE

SOURCE: FEHR & PEERS, Impact Sciences – September 2011

FIGURE 4.8-1

Project Study Area

Signalized intersection operations were evaluated using methodologies provided in the 2000 Highway Capacity Manual (HCM) (Transportation Research Board 2000). These methodologies assess average control delays and then assign a corresponding letter grade that represents the overall condition of the intersection. These grades range from level of service (LOS) A (minimal delay) to LOS F (excessive congestion). LOS E represents at-capacity operations. For this study, levels of service are calculated using Synchro 6.0 software, which implements 2000 HCM methodologies. Synchro software allows the input of signal timing and coordination data to more accurately reflect actual conditions. Descriptions of the LOS letter grades for signalized intersections are provided in **Table 4.8-1, Signalized Intersection LOS Criteria**. Descriptions of the LOS letter grades for unsignalized intersections are provided in **Table 4.8-2, Unsignalized Intersection LOS Criteria**. An analysis of impacts on freeway operations or roadway segment operations was not performed because of the very small number of off-campus trips that would result from the proposed projects and related projects. (See trip generation discussion in **Subsection 4.8.4.3** below.)

**Table 4.8-1  
Signalized Intersection LOS Criteria**

LOS	Description	Delay (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	< 15.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 15.0 to 25.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 25.0 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35.0 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	> 55.0 to 80.0
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	> 80.0

*Source: Highway Capacity Manual (Transportation Research Board, 2000)*

**Table 4.8-2  
Unsignalized Intersection LOS Criteria**

<b>LOS</b>	<b>Description</b>	<b>Delay (Seconds)</b>
A	Little or no delays	< 10.0
B	Short traffic delays	> 10.0 to 15.0
C	Average traffic delays	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic delays with intersection capacity exceeded	> 50.0

*Source: Highway Capacity Manual (Transportation Research Board, 2000)*

#### **4.8.2.4 Existing Roadway Facilities**

##### *On-Campus Roadways*

##### **Linden Street**

On the UCR campus, Linden Street is a two-lane undivided east-west roadway with bike lanes between Canyon Crest Drive and Pentland Way and a 25-miles-per-hour (mph) speed limit. No parking is allowed on this road.

##### **Aberdeen Drive**

Aberdeen Drive is a two-lane divided north-south campus roadway with bike lanes. No parking is allowed on this access road, which is located on the north side of campus. It has a 25 mph speed limit.

##### **Canyon Crest Drive**

Canyon Crest Drive is a four-lane partially divided north-south roadway with a 25 mph speed limit. The portion of Canyon Crest Drive that is owned and maintained by the University is located between Martin Luther King, Jr. Boulevard and West Campus Drive.

##### *Off-Campus Roadways*

##### **Blaine Street**

Blaine Street is an east-west roadway extending from Downtown Riverside (as Third Street) to the UCR campus ending at Watkins Drive. Blaine Street is constructed to its General Plan cross-section as a Major Arterial, with four vehicle lanes, bike lanes, and no curbside parking within its 88-foot curb-to-curb

width. The speed limit on Blaine Street is 40 mph. Blaine Street has a full diamond interchange with the I-215/SR-60 freeway.

### **University Avenue**

University Avenue is a divided east-west roadway extending from Downtown Riverside to the UCR campus. University Avenue is constructed to its General Plan cross-section as a Major Arterial, with four vehicle lanes within its 88-foot curb-to-curb width. University Avenue has bike lanes along portions of its length. The speed limit on University Avenue is 35 to 40 mph. University Avenue has a modified diamond interchange with the I-215/SR-60 freeway. It has no curbside parking between Canyon Crest Drive and Downtown Riverside.

### **Iowa Avenue**

Iowa Avenue is a north-south roadway extending from Martin Luther King, Jr. Boulevard on the UCR West Campus to beyond Blaine Street. Adjacent to the UCR campus, Iowa Avenue is a two-lane secondary street with a 45 mph speed limit and no bicycle lanes. North of Everton Place, Iowa Avenue is a Major Arterial with four vehicle lanes, bike lanes on some segments, and a median just north of University Avenue. Iowa Avenue has no freeway interchange in the vicinity of campus and no curbside parking in the vicinity of the campus.

### **Canyon Crest Drive**

Canyon Crest Drive is one of the primary north-south access roadways in the City with a portion, not under the City's jurisdiction, going through the UCR campus, with West Campus Drive forming a link between the discontinuous north and south segments of the roadway. North of University Avenue, Canyon Crest Drive is a Major Arterial, with four undivided vehicle lanes, bike lanes, and curbside parking limited to north of Linden Street.

### **Watkins Drive**

Watkins Drive is a northwest-southeast roadway forming the northeastern boundary of the UCR campus. Watkins Drive is constructed as an Arterial, with two divided vehicle lanes, bike lanes, and a 45 mph speed limit from north of Blaine Street to Valencia Hill Drive with curbside parking on the south side between Blaine Street and Valencia Hill Drive. Watkins Drive is a two-lane divided roadway south of Valencia Hill Drive, with bicycle lanes and a 35 mph speed limit. Parallel parking is allowed on both sides of the street east of Valencia Hill Drive. Watkins Drive is reduced to a two-lane undivided roadway in the

Box Springs area with bike lanes and no parking. Watkins has a full diamond interchange with the I-215/SR-60 freeway at Central Avenue, south of the UCR campus.

### I-215/SR-60

Interstate 215/State Route 60 are two north-south freeways, which merge between their junction with SR-91 to the north and Box Springs Road to the south. I-215, which provides service to San Bernardino and San Diego counties, varies between a four- and eight-lane roadway, and terminates at I-15 to both the north in Devore and the south in Murrieta. SR-60 provides service to San Bernardino and Los Angeles counties, and terminates at I-10 in both Los Angeles to the west and Beaumont to the east. The roadway varies between four and eight lanes in width. Proximate to the campus, I-215 and SR-60 function as one freeway, with three travel lanes in each direction.

#### 4.8.2.5 Existing Intersection Conditions

As shown in **Table 4.8-3, Intersection Levels of Service – Existing AM and PM Peak Hour**, most of the study intersections currently operate at LOS D or better during the AM and PM peak periods. The only intersection currently operating at a deficient LOS during one or more peak period is Blaine Street/Rustin Avenue (AM peak hour).

**Table 4.8-3  
Intersection Levels of Service – Existing AM and PM Peak Hour**

Intersection	Control	AM Peak Hour		PM Peak Hour	
		Delay <sup>1</sup>	LOS	Delay <sup>1</sup>	LOS
Blaine Street/Iowa Avenue	Signalized	44.0	D	35.5	D
Blaine Street/Rustin Avenue	Signalized	<b>64.6</b>	E	20.7	C
Blaine Street/Canyon Crest Drive	Signalized	19.5	B	22.0	C
Blaine Street/Watkins Drive	Signalized	27.1	C	31.2	C
University Avenue/I-215 SB Ramps	Signalized	18.7	B	16.7	B
University Avenue/I-215 NB Ramps	Signalized	18.0	B	21.1	C

Source: Fehr & Peers, 2010

<sup>1</sup> Delay for intersections based on application of 2000 Highway Capacity Manual Methodology. Delay was calculated using Synchro 6.0 software.

### 4.8.3 REGULATORY FRAMEWORK

#### 4.8.3.1 Federal and State

There are no federal or State transportation regulations applicable to the proposed projects or related projects.

#### 4.8.3.2 Local

##### *City of Riverside*

The City of Riverside General Plan (2007) includes objectives aimed at maintaining an effective transportation system throughout the City. These objectives provide guidance for development in the City. No specific objectives relevant to the proposed projects or related projects were identified.

### 4.8.4 IMPACTS AND MITIGATION MEASURES

#### 4.8.4.1 Significance Criteria

The impacts on transportation and traffic from the implementation of the proposed projects and related projects would be considered significant if they would exceed the following significance criteria, in accordance with Appendix G of the *State CEQA Guidelines* and the UC CEQA Handbook:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;
- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Result in inadequate emergency access; or
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

### Intersections

As the lead agency for these projects, the University has the authority to establish its own set of significance criteria. However, to maintain consistency with the City of Riverside, the City's significance criteria were used for intersections within the City's jurisdiction. For campus intersections, the University of California used its own set of significance criteria. **Table 4.8-4, Intersection LOS Criteria** summarizes the significance criteria for City and University intersections.

**Table 4.8-4  
Intersection LOS Criteria**

Level of Service	City Significance Criteria <sup>1</sup>	University Significance Criteria
A	>10.0 seconds increased delay	
B	>10.0 seconds increased delay	
C	>8.0 seconds increased delay	
D	>5.0 seconds increased delay	
E	>2.0 seconds increased delay	Significant Impact
F	>1.0 seconds increased delay	Significant Impact

Source: Fehr & Peers, 2010

<sup>1</sup> Average delay is calculated for signalized and all-way stop controlled intersections. Worst approach delay is calculated for side street stop controlled intersections.

As shown in **Table 4.8-4**, a significant impact at City intersections occurs when project traffic causes additional delay at an intersection above a certain threshold. For University intersections, a significant impact occurs when the intersection operations degrade to LOS E or F, regardless of the amount of new project trips that travel through the intersection.

### Alternative Modes

Transit impacts are considered significant if:

- A project or project-related mitigation disrupts existing transit services or facilities. This includes disruptions caused by proposed-project driveways on transit streets and impacts to transit stops/shelters and impacts to transit operations from traffic improvements proposed or resulting from a project.
- A project interferes with planned transit services or facilities.
- A project creates demand for public transit services above the capacity which is provided, or planned.

Pedestrian impacts are considered significant if:

- A project interferes with existing or planned pedestrian routes.

#### 4.8.4.2 CEQA Checklist Items Adequately Addressed in the Initial Study

The analysis in the Initial Study prepared for the projects and circulated with the NOP concluded that further analysis of the following issue is not required in the EIR.

- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

The EH&S Expansion, Parking Lot 27 (proposed projects), and related projects would not result in additional vehicular traffic volumes above those anticipated in the 2005 LRDP EIR, and would not increase impacts above those identified in that EIR. Even if the projects' estimated daily traffic were added to the existing volumes of traffic on the study area CMP facilities (primarily I-215/SR60 freeway), it would not degrade the existing level of service to LOS E or F, and would not be sufficient to increase the volume to capacity ratio by 0.01 for a facility that is already operating at LOS F. This issue is not discussed further in this section.

- 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.

The Initial Study determined that the proposed projects and related projects would not affect the air traffic patterns at any of the regional airports. The projects do not include activities or structures that could hinder aviation activity. This issue is not discussed further in this section.

- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

As discussed in the Initial Study (pp. 84), new internal roadways and driveways associated with the proposed projects and related projects have been designed using standard engineering practices to avoid design elements that could result in hazards due to features such as sharp curves or dangerous intersections. The proposed projects would also implement existing campus Programs and Practices (PP), such as PP 4.14-4, which would result in the consideration of Campus Design Guidelines in the design of roadways. In addition, relocation of the EH&S facility from its current location would reduce the risks associated with its steep, narrow driveway under current conditions.

Waste removal trucks serving the proposed EH&S Expansion would enter and exit the new facility via a secured driveway on Watkins Drive. Entering trucks (traveling east from the freeway) would make a



right turn into the driveway and exiting trucks (traveling west to the freeway) would make a left turn from the driveway into Watkins Drive. Such truck trips would occur approximately 19 to 31 times per year, or approximately two to three times per month. Sightlines along this stretch of Watkins Drive for drivers exiting the driveway would be several hundred feet in each direction, which is adequate for safe turning. Because of the infrequent nature of these truck trips and adequate sight lines, there would be no significant conflicts between truck turning movements and vehicle and pedestrian traffic along Watkins Drive.

All other facility-related traffic, which would include EH&S employee vehicles and EH&S campus waste haul vehicles, as well as vehicles using the proposed Parking Lot 27, would gain access from Linden Street, an internal campus roadway that terminates at the project site. Because of the relatively small number of daily trips that would be generated by the facility or directed to the new parking lot, there would be no significant conflicts between vehicle turning movements and vehicle and pedestrian traffic along Linden Street. In addition, the related projects would transfer some operations currently at the Corporation Yard, including Mail Services, to the existing EH&S facility in another part of the campus. This would also route a number of daily trips away from the proposed project site, reducing traffic in the immediate area. Therefore, the proposed EH&S Expansion and Parking Lot 27 projects and related projects would not substantially increase hazards due to a design feature or incompatible uses during operation. This issue is not discussed further in this section.

- Result in inadequate emergency access.

In the short term, construction activity associated with the proposed projects and related projects could require the closure of traffic lanes or roadway segments, which could result in impaired emergency access. Development of the proposed projects and related projects would be required to implement existing campus PPs, such as PP 4.14-5 and PP 4.14-8, which would require consultation with emergency service providers regarding roadway closures. (These PPs are discussed in more detail in **Section 4.4, Hazards and Hazardous Materials.**) Therefore, development of the proposed projects and related projects would not impair emergency access. This issue is not discussed further in this section.

- Conflict with applicable policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

The Initial Study determined that the proposed projects and related projects would not result in additional vehicle trips beyond those evaluated in the 2005 LRDP EIR. Because the population associated with the proposed projects is included in the projected campus population that was analyzed for its traffic impacts in the 2005 LRDP Amendment 2 EIR (2011), they would also not result in additional vehicle trips beyond those evaluated in the LRDP Amendment 2 EIR. Development of the proposed

projects would be guided by a range of LRDP Planning Strategies (PS), would continue existing campus PPs, and would be required to implement LRDP Mitigation Measure (MM) 4.14-1(b) and 4.14-1(c) which require the Campus to enhance its TDM program and work with the local transit agency to further improve transit service. Thus, the proposed projects and related projects would not conflict with applicable policies, plans, or programs supporting public transit, bicycles, and pedestrians. This issue is not discussed further in this section.

#### 4.8.4.3 Methodology

##### *Trip Generation*

Vehicle trips associated with the proposed projects would consist of EH&S employee vehicles, EH&S campus waste haul vehicles, waste off-haul vehicles, visitor trips to the EH&S Expansion facility, and vehicles using the proposed Parking Lot 27. Trips associated with each of these vehicle types are estimated and reported below.

##### **EH&S Employee Trips**

To estimate the number of peak-hour trips that would be associated with the EH&S employees, the trip generation rate for faculty and staff used in recent traffic analyses for the campus was used. The total number of employees at the facility is projected to be 30 at buildout. Approximately 22 employees work at the existing EH&S facility and would be relocated to the proposed new facility; the remaining 8 employees are expected to be added over the next several years. **Table 4.8-5, AM and PM Peak Hour Trip Rate and Estimated Trips**, presents the estimated peak hour trips associated with the proposed EH&S Expansion based on the estimated population.

**Table 4.8-5  
AM and PM Peak Hour Trip Rate and Estimated Trips**

AM and PM Peak Hour	Employees	AM In	AM Out	AM Total	PM In	PM Out	PM Total
Trip Rate		0.384	0.106	0.490	0.287	0.430	0.717
<b>Total Peak Hour Trips</b>	30	11.5	3.2	14.7	8.6	12.9	21.5

*Source: Fehr & Peers/Impact Sciences, 2011*

Related projects would not add new employee vehicle trips to the off-campus study area intersections because the Corporation Yard reorganization project would demolish 4,000 square feet of warehouse

space and construct 5,400 square feet of replacement warehouse space. There would not be any increase in employee vehicle trips to the Corporation Yard.

### Waste Hauling Trips

Under long-term (2020/2021) operating conditions, the amount of waste generated on campus is projected to increase as the campus population grows. For the purposes of this analysis, it is assumed that the quantities of hazardous materials and wastes handled at the EH&S facility would increase four-fold. However, the number of truck trips that would off-haul hazardous wastes would not increase by a corresponding factor, primarily because the new facility would allow greater efficiency in storage and packaging operations, reducing the number of trips needed to handle waste generated over a given period of time. **Table 4.8-6, EH&S Waste Truck Trips**, shows the estimated number of daily, weekly, and occasional trips that would be generated by the new facility. This includes EH&S truck trips carrying waste from campus sites to the proposed EH&S Expansion facility using on-campus roadways as well as waste off-haul truck trips that would use City streets to access the nearest freeway.

**Table 4.8-6  
EH&S Waste Truck Trips**

Truck Trip Description	Type	Current	2020/2021
EH&S Waste Truck Pick-up (waste from campus)	On campus	6/day	6-8/day
FedEx/UPS	On campus	5/day	5/day
Campus Storehouse Delivery Truck	On campus	2/day	2/day
Physical Plant Electrician (used fluorescent tube drop-off)	On campus	3/day	6-8/day
<b>Daily Total</b>		<b>16</b>	<b>16-20</b>
Housing (used fluorescent tube drop-off)	On campus	2/week	4/week
Uniform Cleaning Services vendor	Off campus	1/week	1/week
Medical Waste Vendor Pick-up	Off campus	1/month	1/month
Universal & E-waste Waste Vendor Pick-up	Off campus	6/year	6-8/year
Hazardous Waste Vendor Pick-up	Off campus	6/year	6-8/year
Radioactive Waste Vendor Pick-up	Off campus	2/year	2-3/year

Source: UC Riverside 2010

### Visitor Trips

Currently, the demand for EH&S-related training is met by the EH&S program, and physically accommodated in miscellaneous meeting rooms on the UCR campus. With completion of the proposed projects, these training classes would take place at the new facility. These classes would take place in the safety learning center, which can hold up to 60 people, and would occur throughout the year, with total

monthly attendance varying widely from fewer than 29 to about 375 attendees per month and an average monthly attendance of about 220. These trips would be by campus personnel and would not involve new trips to the campus that would not otherwise occur. Trips associated with training functions were accounted for in the projections of the 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR (2011).

### **Parking Lot 27 Trips**

Vehicles that would park in Parking Lot 27 are vehicles that already access the campus and currently park elsewhere, including along Watkins Drive. These would not add new vehicle trips to off-campus roadways.

### **Related Project Trips**

Vehicle trips currently associated with the Mail Services and Printing & Reprographic operations would be rerouted to the existing EH&S facility once those operations were relocated. Under existing conditions, Mail Services makes round trips from the existing Mail Services facility at the Corporation Yard to locations around campus, using mostly internal campus roadways. Printing & Reprographics also makes delivery trips using campus roadways. While these trips would be redistributed along internal campus roadways, the total number of trips would not increase. Because many of these trips would no longer include the Corporation Yard, traffic along roadways in the immediate vicinity of the project site would likely decrease with implementation of the related projects.

### ***Trip Distribution***

As noted earlier, EH&S campus waste haul trips would use internal campus roadways and would not add traffic to off-campus streets. The waste off-haul trips would be very infrequent (approximately 2 to 3 times per month) and would not add to peak hour traffic. EH&S training-related visitor trips would occur infrequently and would merely temporarily redistribute existing trips, and therefore would not add to daily and peak hour traffic. The Corporation Yard reorganization would not add new vehicle trips to the project area, and the reuse of the existing EH&S buildings would not add traffic to the study area intersections. Therefore, the only vehicle trips of concern would be those associated with the relocated and new EH&S employees.

Trips from EH&S employee traffic were assigned to the roadway network based on likely travel patterns. For purposes of analysis, it was conservatively assumed that all project-related traffic would access the project site via the I-215/SR-60 freeway. This is a conservative assumption that extends project trips through all of the intersections between the EH&S Expansion and Parking Lot 27 project site and the freeway, although it is likely that some employees would come from locations near the project site and

would not pass through all intersections between the site and the freeway. From the I-215/SR-60 freeway, the project site can be accessed via the University Avenue interchange and on-campus streets such as Canyon Crest Drive and Linden Street, or via the Blaine Street interchange and off-campus streets including Blaine Street and Watkins Drive. For the purposes of this analysis, it is assumed that all trips would use the Blaine Street interchange; this represents a worst-case scenario as it adds all of the project-related peak hour traffic to off-campus intersections along the Watkins Drive/Blaine Street route.

#### 4.8.4.4 Relevant LRDP Mitigation Measures, Planning Strategies, and Programs and Practices

The 2005 LRDP Amendment 2 EIR (2011) identifies a series of Planning Strategies (PS), Programs and Practices (PP), and Mitigation Measures (MM) that are relevant to traffic and transportation and includes Mitigation Measures to reduce impacts of buildout of the 2005 LRDP. These measures are considered part of the projects for purposes of this analysis. The full list of PSs, PPs, and LRDP Mitigation Measures is included in **Appendix 1.0** of this EIR, and those relevant to transportation and traffic for the proposed projects and related projects are provided in the impact discussion below.

#### 4.8.4.5 Project Impacts and Mitigation Measures

**Impact 4.8-1 Implementation of the EH&S Expansion and Parking Lot 27 (proposed projects) and related projects would result in additional or rerouted vehicular trips which would increase traffic volumes but would not degrade intersection levels of service under existing conditions. The impact would be less than significant.**

##### *Proposed Projects*

Project-related trips for the proposed EH&S Expansion were included in the total LRDP buildout trip generation included in the traffic analysis in the 2005 LRDP Amendment 2 EIR. However, in order to assess the effects of project trips on local off-campus roadways, the project-specific peak hour traffic was estimated as shown in **Table 4.8-5**. The proposed EH&S Expansion project would generate approximately 14.7 vehicle trips during the AM peak hour (with 11.5 inbound and 3.2 outbound trips) and 21.5 vehicle trips during the PM peak hour (with 12.9 outbound and 8.6 inbound trips) under project operational conditions. The majority of these trips would not be new trips as they are associated with the 22 existing employees who would be relocated from the existing EH&S facility. However, because under existing conditions these employees do not travel to the Linden Street site and therefore most likely do not travel through the study intersections along Blaine Street (Blaine/Iowa, Blaine/Rustin, Blaine/Canyon Crest, and Blaine/Watkins Drive), the total number of EH&S employee trips from **Table 4.8-5** was used to analyze

project impacts. As described above, for the purposes of this analysis, all of these trips were assumed to travel between the I-215/SR-60 freeway and the project site via Blaine Street and/or Watkins Drive.

Under existing conditions, as shown in **Table 4.8-3**, one intersection along this route (Blaine Street/Rustin Avenue) operates at a deficient LOS during peak hours. This intersection operates at LOS E during the AM peak hour without the addition of project traffic. All other intersections along the route operate at an acceptable LOS D or better during both peak hours.

Fehr & Peers calculated the LOS and increase in delay for this intersection with the addition of peak-hour project traffic (Fehr & Peers 2011a). Intersection LOS calculations are included in **Appendix 4.8**. For the intersection of Blaine Street and Rustin Avenue, traffic from the proposed EH&S Expansion project would add approximately 0.4 second of delay to the intersection during the AM peak hour. This is well below the City's threshold of an increase of greater than 2 seconds for an intersection operating at LOS E. In addition, the increase in delay would not cause intersection operations to deteriorate from LOS E to LOS F. Therefore, there would be a less than significant impact at this location. The effect of project traffic at other study intersections along the analyzed travel route would be similar and would cause a comparable slight increase in delay at these locations. Because these intersections operate at acceptable LOS ranging from B to D, the small increase in delay from the addition of project traffic would be well below the City's thresholds and would not result in a significant impact on intersection operations. The impact would be less than significant.

Although, as stated earlier, it was conservatively assumed that all project operational traffic would use the Blaine Street freeway ramps for access to I-215/SR-60, some of the employee traffic may access the freeway via University Avenue. As shown in **Table 4.8-3**, the freeway ramp intersections operate at acceptable LOS (B to C) under current conditions. For the same reasons as discussed above for the expected route from the freeway along Blaine Street and then Watkins Avenue, the addition of a few daily peak-hour trips to these intersections would not increase delay substantially, and impacts would be less than significant.

The proposed Parking Lot 27 project would not increase campus population or generate new trips, and would involve only minor redistribution of existing traffic on local roadways. It would therefore have a less than significant impact on intersection LOS.

### ***Related Projects***

The related projects (Corporation Yard reorganization and the existing EH&S buildings re-use) would involve the replacement or relocation of existing campus support functions. They would result in some

redistribution of existing trips, primarily within the campus, but would not add trips to off-campus roadways. The impact would be less than significant.

**Mitigation Measures:** No mitigation is required.

**Impact 4.8-2**                    **Implementation of the EH&S Expansion and Parking Lot 27 (proposed projects) and related projects would result in the generation of construction-related vehicle trips that would not substantially affect traffic conditions at the study intersections. The impact would be less than significant.**

### *Proposed Projects*

Construction vehicle traffic associated with the proposed projects, which include relevant 2005 LRDP PSs, PPs, and MMs, could result in short-term impacts at intersections in the vicinity of the campus. Construction of the proposed building and parking lot would generate vehicle trips for the removal of construction debris, grading and/or excavation of sites for building foundations and associated export of earth materials, delivery of construction materials, and trips associated with construction workers and equipment. These activities could result in periods of heavy truck traffic that could negatively affect road segments and intersections in the vicinity of the projects. To address this issue, the proposed projects, like all construction projects on the campus, would be required to implement existing campus PPs, such as PP 4.14-2, which would reduce potential impacts by requiring coordination of construction activities to avoid overlap of activities with heavy truck traffic such as excavation or demolition of large structures, and PP 4.14-5 to minimize the effect of road closures.

PP 4.14-2                    The Campus will periodically assess construction schedules of major projects to determine the potential for overlapping construction activities to result in periods of heavy construction vehicle traffic on individual roadway segments, and adjust construction schedules, work hours, or access routes to the extent feasible to reduce construction-related traffic congestion.

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 appropriate signage indicating alternative routes.

(This is identical to Hazards and Hazardous Materials PP 4.7-7(a).)

Site preparation, including clearing, fill, compaction, and grading required to prepare the proposed EH&S Expansion and Parking Lot 27 site, is estimated to take approximately 12 to 15 working days. Haul traffic, which would occur throughout the site preparation phase, is estimated at 460 truckloads. The heaviest construction traffic is anticipated during site grubbing and grading, with approximately 40 daily truck trips. These trips would be spaced out throughout the 8-hour workday, averaging 5 trips per hour. During later construction phases it is expected that there would be one peak day during concrete pouring activities, with 10-12 trucks in one day.

The planned truck route for construction traffic would require all construction-related vehicles to travel by roadways to the west and north of the proposed project site to I-215/SR-60, following major streets. No construction traffic would be allowed to travel east of the project site on Watkins Drive toward Valencia Hill Drive or southward onto Big Springs Road, as there are stop-sign controlled intersections in the area that are currently congested during peak hours. Although construction traffic would not be routed to Valencia Hill Drive or Big Springs Road, and therefore no congestion and neighborhood impacts are anticipated, a mitigation measure (**MM 4.8-2**) is proposed to ensure that no construction trucks are routed east of the project site and neighborhood intrusion and congestion at unsignalized intersections is avoided.

As discussed under **Impact 4.8-1** above, intersections to the west and north of the proposed project operate at acceptable LOS, with the exception of Blaine Street/Rustin Avenue. Construction traffic could include approximately 5 trips per hour during the 8-hour workday. For the purposes of this analysis, one construction truck is considered equivalent to 3 passenger vehicles, because of the typically slower speeds and longer stopping and accelerating times required by heavy trucks. Therefore, should the traffic control plan include routing construction trucks through this intersection, the proposed projects could potentially add the equivalent of approximately 15 trips to this intersection in the AM peak hour during the approximately 12 to 15 day period when construction traffic would be at its heaviest. As described in **Impact 4.8-1** above, the addition of a similar number of trips (12 trips/hour) to the Blaine Street/Rustin Avenue intersection during the AM peak hour would be expected to increase delays by about 0.4 second, well below the City's threshold of an increase of greater than 2 seconds. The addition of project-related construction truck trips in the AM peak hour would result in a similar minor increase in delay and the impact would be less than significant.

### ***Related Projects***

The related projects, which include relevant 2005 LRDP PSs, PPs, and MMs, could have construction traffic impacts similar to but less than those of the proposed projects because of their smaller size. As with the proposed projects, relevant PPs including PP 4.14-2 and PP 4.14-5 would be implemented. For each



phase of the related projects, the heaviest truck traffic is expected to be during the demolition phase, estimated as follows:

- 28 truck trips over a period of 14 days for demolition of the Mail Services Building (Corporation Yard)
- 35 truck trips over a period of 15 days for demolition of Warehouse #2 (Corporation Yard)
- 10 truck trips over a period of 15 days for interior demolition of the existing EH&S facility

Based on the peak number of vehicle trips estimated above for the construction phase of the related projects, and assuming that construction traffic would follow the most direct haul route, the delay due to the much lower numbers of construction trips associated with the related projects would also be well below the City's significance thresholds for increased intersection delays. The impact would be less than significant. (For analysis of potential cumulative impacts from concurrent construction of the proposed projects, related projects, and other campus and non-campus projects, see **Impact 4.8-4** below.)

**Mitigation Measures:** Even though the impact from construction truck traffic would be less than significant, the following Mitigation Measure will be implemented as part of the proposed projects and related projects to further reduce the less than significant impact.

MM 4.8-2 Prior to commencement of construction, the construction contractor shall prepare a traffic control plan for the project and submit it to the UCR Office of Architects & Engineers and Capital Resources Management for approval. Preparation of and compliance with the traffic control plan shall be included as a condition of all construction contracts. The traffic control plan shall include the following:

1. The plan shall specify the truck route to be taken by construction contractors for travel between the project site and I-215/SR-60 freeway. Except in an emergency, no construction traffic shall be allowed to travel east of the project site on Watkins Drive or southward onto Big Springs Road.
2. As part of its review of the traffic control plan, the UCR Office of Architects & Engineers and Capital Resources Management will consult with UCPD, EH&S, RFD, and RPD, as appropriate, to disclose roadway closures and identify alternative travel routes, if necessary. The UCR Office of Architects & Engineers and Capital Resources Management will consult with the City Public Works Department to obtain its concurrence regarding the adequacy of traffic control along off-campus roads. The traffic control plan shall identify lane closures, show the limits of construction work, areas with temporary restriping of lanes and crosswalks, flagging operations, signage, alternate routes, and other actions necessary to maintain safe traffic conditions for vehicles, bicyclists, and pedestrians. Any lane closures specified in the traffic control plan will be announced on UCR's web site ([www.community.ucr.edu](http://www.community.ucr.edu)).

#### 4.8.4.6 Cumulative Impacts and Mitigation Measures

The geographic context for the analysis of cumulative impacts related to traffic and transportation is the City of Riverside. The analysis accounts for all anticipated cumulative growth within this geographic area, as represented by full implementation of the City of Riverside General Plan.

**Impact 4.8-3 Cumulative development, including the EH&S Expansion and Parking Lot 27 (proposed projects) and related projects, would not result in significant cumulative traffic impacts on city roadways between the project sites and the freeway. The impact would be less than significant.**

The analysis in the 2005 LRDP Amendment 2 EIR (2011) concluded that cumulative traffic growth, including campus growth under the 2005 LRDP (as amended), which includes the proposed projects and related projects, would result in significant cumulative impacts at a total of 18 intersections. The analysis determined that the contribution of campus growth under the amended 2005 LRDP to the cumulative traffic impacts would be cumulatively considerable. The analysis also concluded that that even with mitigation, all intersection impacts would not be reduced to a less than significant level as the intersection improvements were not within the University's control and their implementation could not be assured. The proposed projects and related projects would not increase the number of employees associated with the campus beyond that anticipated in the 2005 LRDP Amendment 2 EIR. Therefore, the proposed projects and related projects would not increase the severity of the previously analyzed cumulative traffic impacts. As shown in project-level **Impact 4.8-1**, the proposed projects and related projects would result in a very small increase in peak hour traffic; however, to minimize the proposed projects' and the related projects' contribution to the significant and unavoidable cumulative traffic impact, consistent with LRDP Amendment 2 MM 4.14-1(b) and 4.14-1(c), UCR will continue to implement and enhance its TDM program to reduce employee vehicle trips to the campus, including those associated with the proposed projects and related projects.

MM 4.14-1(b): Travel Demand Management. To reduce on- and off-campus vehicle trips and resulting impacts, the University will enhance its Transportation Demand Management (TDM) program. TDM strategies will include measures to increase transit and Shuttle use, encourage alternative transportation modes including bicycle transportation, implement parking policies that reduce demand, and other mechanisms that reduce vehicle trips to and from the campus. The University shall monitor the performance of campus TDM strategies through annual surveys.

MM 4.14-1(c): Transit Enhancement. To enhance transit systems serving the campus, the University will work cooperatively with the RTA, and other local agencies to coordinate service routes with existing and proposed Shuttle and transit programs.

The contribution of the proposed projects and related projects to this impact would not be cumulatively considerable.

**Mitigation Measures:** No mitigation is required.

**Impact 4.8-4**                         **Concurrent construction of the EH&S Expansion and Parking Lot 27 (proposed projects), related projects, and other projects near the project site could result in significant cumulative traffic impacts on off-campus roadways. With mitigation, the proposed projects' and related projects' contribution to the cumulative impact would not be cumulatively considerable.**

Access to and from the East Campus is relatively constrained due to the existence of the I-215/SR-60 freeway and the number of residential streets in the campus vicinity. Consequently, both the 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR identified significant cumulative impacts related to periods of heavy truck traffic off-campus as a result of the delivery of construction materials and equipment and the hauling of demolition waste and earth materials. Construction of the proposed projects and related projects could overlap with the construction of other projects on the campus and near the campus and create the potential for overall construction traffic to result in localized impacts at individual intersections near the construction sites or along the designated haul routes used for export or delivery of construction materials and equipment. Other campus projects that could overlap or occur simultaneously with construction of the proposed projects during the period from 2012 to 2013 and that of the related projects between 2012 and 2014 include the Glen Mor 2 Student Apartments, Boyce Hall and Webber Hall Renovations, Health Sciences Teaching Center, and Student Recreation Center Expansion, as well as several landscaping, renovation, and infrastructure projects. To address this issue, all construction projects on the campus would be required to implement existing campus PPs (discussed under **Impact 4.8-2** above), such as PP 4.14-2, which would reduce potential impacts by requiring coordination of construction activities to avoid overlap of activities with heavy truck traffic such as excavation or demolition of large structures, and PP 4.14-5 to minimize the effect of road closures.

Continued implementation of existing campus PPs would reduce potential impacts by requiring coordination of construction activities, in particular to avoid overlap of activities with heavy truck traffic, such as excavation, or demolition of large structures. These measures would reduce the proposed

projects' and related projects' contribution to cumulative construction traffic impacts. Furthermore, the proposed projects and related projects would implement **MM 4.8-2**, which would further reduce any construction-related traffic impacts. Therefore, the projects' and the related projects' contribution to a cumulative traffic impact would not be cumulatively considerable.

**Mitigation Measures:** No mitigation is required.

## 5.0 OTHER CEQA CONSIDERATIONS

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Section 15126 of the *California Environmental Quality Act (CEQA) Guidelines* state that an Environmental Impact Report (EIR) must include a discussion of the following three topics:

- significant environmental effects which cannot be avoided if the proposed project is implemented,
- significant irreversible environmental changes which would be involved in the proposed project should it be implemented, and
- growth-inducing effects of the proposed project.

In addition, Section 15128 of the *State CEQA Guidelines* requires a brief statement of the reasons that various possible effects of a project have been determined not to be significant and, therefore, are not evaluated in the EIR. The following sections address each of these types of impacts.

### 5.1 SIGNIFICANT ENVIRONMENTAL EFFECTS OF THE PROJECT

**Table 2.0-1, Summary of Impacts and Mitigation Measures**, which is contained in **Section 2.0** of this EIR, and **Sections 4.1** through **4.8** of this EIR provide a comprehensive identification of the environmental effects of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and the related Corporation Yard reorganization and existing EH&S buildings re-use (related projects), including the level of significance both before and after mitigation.

### 5.2 SIGNIFICANT AND UNAVOIDABLE EFFECTS

An EIR must identify significant impacts associated with a proposed agency action that could not be mitigated to a less than significant level. As part of the certification process, the Board of Regents of the University of California (The Regents) or its delegate will make a final decision as to the significance of impacts and the feasibility of mitigation measures in this EIR. As detailed in **Section 4.0**, implementation of the proposed projects and related projects would result in the following significant noise impacts that would not be mitigated to a less than significant level:

- Project-level and cumulative impacts resulting from an increase in on- and off-campus ambient noise levels due to project construction
- Cumulative impacts resulting from an increase in off-campus noise due to project operational traffic

All other environmental impacts (project-specific and cumulative) are either less than significant or can be mitigated to a less than significant level.

### 5.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 15126.2(c) of the *State CEQA Guidelines* states that an EIR must include a discussion of any significant irreversible environmental changes that would be caused by a proposed project. Generally, a project would result in significant irreversible environmental changes if:

- the primary and secondary impacts would generally commit future generations to similar uses;
- the proposed consumption of resources is not justified (e.g., the project involves the wasteful use of energy);
- the project would involve a large commitment of nonrenewable resources; or
- the project involves uses in which irreversible damage could result from any potential environmental accidents associated with the project.

Development of the proposed projects and related projects would result in the continued commitment of the EH&S Expansion and Parking Lot 27 site and related project sites to University-related uses, thereby precluding any other uses for the lifespan of the campus. The Regents' ownership of the campus represents a long-term commitment of the campus lands to University use. As with the restoration of the campus as a whole to pre-developed conditions, restoration of the project site and related project sites would not be feasible given the degree of disturbance, the urbanization of the area, and the level of capital investment.

Resources that would be permanently and continually consumed by project implementation include water, electricity, natural gas, and fossil fuels. In addition, construction activities related to the proposed projects and related projects would result in the irretrievable commitment of nonrenewable energy resources, primarily in the form of fossil fuels (including fuel oil, natural gas, and gasoline) for automobiles and construction equipment. However, the consumption of these resources during construction and operation of campus facilities would not represent unnecessary, inefficient, or wasteful use of resources.

With respect to operational activities on campus, compliance with all applicable building codes, as well as LRDP Planning Strategies, Programs and Practices, and Mitigation Measures would ensure that all natural resources are conserved to the maximum extent feasible. It is also possible that new technologies or systems will emerge, or will become more cost-effective or user-friendly, to further reduce the Campus' reliance on nonrenewable natural resources. Overall, the consumption of natural resources would increase at a lesser rate than the projected population increase due to the variety of energy conservation measures that the Campus has and will continue to implement.

As previously discussed, the Campus has instituted lighting and other energy conservation measures and has been replacing in-building lighting systems with up-to-date energy-saving equipment when appropriate. Lighting conservation efforts in new construction include installation of occupancy sensors to automatically turn off lights when not in use, lighting reflectors, electronic ballasts, and energy efficient lamps. In addition, the Campus shall continue to implement all new development under the 2005 LRDP as amended, including the proposed projects and related projects, in accordance with specifications contained in Title 24 of the California Building Code. Through the efficient use of electricity on campus, the use of natural gas on the campus would also occur in an efficient manner. Improvements to the efficiency of HVAC units will also allow more efficient use of natural gas for heating.

The *State CEQA Guidelines* also require a discussion of the potential for irreversible environmental damage caused by an accident associated with the project. While the UCR campus uses, transports, stores, and disposes of hazardous wastes, as described in **Section 4.4, Hazards and Hazardous Materials**, the Campus complies with all applicable State and federal laws and existing campus programs, practices, and procedures related to hazardous materials, which reduces the likelihood and severity of accidents that could result in irreversible environmental damage. In the history of UC ownership of the campus, there have been no accidents resulting in irreversible environmental damage, indicating that current practices with respect to hazardous materials handling are adequate, and thus the potential for the proposed projects and related projects to cause irreversible environmental damage from an accident or upset of hazardous materials is considered low.

#### 5.4 GROWTH-INDUCING IMPACTS

This section evaluates the potential for the proposed projects and related projects to induce growth in the Riverside area. Section 15126.2(d) of the *State CEQA Guidelines* requires that an EIR include a discussion of the potential for a proposed project to foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment.

The *State CEQA Guidelines* do not provide specific criteria for evaluating growth inducement and state that it must not be assumed that growth in an area is necessarily beneficial, detrimental, or of little significance to the environment. Growth inducement is generally not quantified, but is instead evaluated as either occurring or not occurring with implementation of a project. The identification of growth-inducing impacts is generally informational, and mitigation of growth inducement is not required under CEQA. It must be emphasized that the *State CEQA Guidelines* require an EIR to “discuss the ways” that a project could be growth inducing and to, “discuss the characteristics of some projects that may encourage [...] activities that could significantly affect the environment.” However, the *State*

CEQA Guidelines do not require an EIR to predict or speculate specifically where such growth would occur, in what form it would occur, or when it would occur.

For the purposes of this analysis, the proposed projects and related projects would be considered growth-inducing if they meet either of the following criteria:

- Implementation of the proposed projects and related projects causes economic expansion and population growth through employment expansion and/or the construction of new housing, or
- Implementation of the proposed projects and related projects removes an obstacle to population growth (for example, through the expansion of public services or utilities into an area that does not presently receive these services), or through the provision of new access to an area, or a change in a restrictive zoning or General Plan land use designation.

An evaluation of the proposed projects and related projects against these criteria is provided below.

#### **5.4.1 Economic Expansion**

##### ***Direct Growth***

The proposed projects and related projects would not add housing that could increase the total campus-affiliated population living on the UCR campus or in the City of Riverside. The proposed projects and related projects would ultimately result in an increase of about 8 campus employees, but would not cause an increase in the number of employees on the campus over levels projected in the 2005 LRDP (as amended by the 2005 LRDP Amendment 2 [2011]). This increase in population would result in negligible growth in housing demand within the County of Riverside.

##### ***Indirect Economic Growth***

The proposed projects and related projects would not result in growth inducement as a result of economic expansion or population growth. The addition of population in an area has the potential to increase the amount of spending, thereby stimulating the economic activity of the area. Increased future employment generated by resident and employee spending can ultimately result in the physical development of space or the need for services to accommodate additional employees to serve the new population. However, the small additional population associated with the projects would create minimal demand for additional goods and services. Therefore, apart from the direct jobs on the campus, the proposed projects and related projects would result in minimal creation of new indirect and induced jobs. (Indirect jobs are those that are created or sustained when the Campus purchases goods and services from businesses in the region, and induced jobs are created or sustained when wage incomes of those employed in direct and indirect jobs are spent on the purchase of goods and services in the region.)



### ***Indirect Population Growth***

The indirect and induced employment that would result from growth in direct employment on campus could in turn result in additional population growth as individuals move into the study area to fill these jobs. However, the proposed projects would create a very small number of new jobs on the campus, and these have already been accounted for in the 2005 LRDP as amended and regional growth forecasts. The indirect population growth that could be generated in association with the proposed projects and related projects would be negligible.

#### **5.4.2 Removal of Impediment to Growth or Urbanization in a Remote Location**

Growth in an area may result from the removal of physical impediments or restrictions to growth, as well as the removal of planning impediments resulting from land use plans and policies. In this context, physical growth impediments may include non-existent or inadequate access to an area or the lack of essential public services (e.g., water services), and planning impediments may include restrictive zoning and/or general plan designations.

As discussed in the Initial Study prepared for the proposed projects and related projects (**Appendix 1.0**), existing utility systems would be extended slightly to serve the proposed projects. The necessary infrastructure currently exists adjacent to the proposed project sites and all utility connections would be made within the campus boundaries. Because campus utilities do not serve off-campus areas, utility extensions and expansions would not result in the removal of existing impediments to growth off campus or lead to urban growth outside the boundary of the campus. In addition, the proposed projects and related projects are located within the existing developed areas of the campus and are not in remote locations where the provision of infrastructure could enable additional development. The physical environmental effects of utility installation within the confines of the campus due to the proposed projects and related projects are analyzed in the other sections of this EIR.

#### **5.4.3 Precedent Setting Action**

A decision by The Regents of the University of California or its delegate to approve the proposed projects and related projects would not be considered a precedent-setting action. Approval of campus projects would continue to be considered on a case-by-case basis and project approval would not necessarily mean that other development approvals in the area would follow.

Due to the limited increase in population and employment and the fact that major infrastructure extensions would not occur, the proposed projects and related projects are not considered growth inducing. However, to the extent that the projects support projected campus growth accommodated by

the 2005 LRDP as amended, the impacts of that growth are within the estimates of and adequately analyzed in the 2005 LRDP Amendment 2 EIR (see Section 4.11, Population and Housing, and Section 5.0, Other CEQA Considerations, of the 2005 LRDP Amendment 2 EIR for discussion of these projected growth estimates).

## 5.5 MITIGATION MEASURES PROPOSED TO MINIMIZE SIGNIFICANT EFFECTS OF THE PROPOSED PROJECT

**Table 2.0-1, Summary of Impacts and Mitigation Measures**, which is contained in **Section 2.0** of this EIR, provides a comprehensive identification of the environmental effects of the proposed projects and related projects, along with proposed mitigation measures.

## 5.6 EFFECTS FOUND NOT TO BE SIGNIFICANT

Section 15128 of the *State CEQA Guidelines* requires an EIR to briefly describe any potential environmental effects that were determined not to be significant during the Initial Study and EIR scoping process and were, therefore, not discussed in detail in the EIR. All impacts found less than significant are described in the Initial Study or in the sections of the EIR.

## 5.7 ALTERNATIVES TO THE PROPOSED PROJECT

Alternatives to the proposed projects are presented in **Section 6.0, Alternatives** of this EIR.

## 6.0 ALTERNATIVES

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### 6.1 INTRODUCTION

The California Environmental Quality Act (CEQA) requires an Environmental Impact Report (EIR) to describe and evaluate a range of alternatives to the proposed project or alternatives to the location of the proposed project. The purpose of the alternatives analysis is to explore ways that the objectives of the proposed project could be attained while reducing or avoiding significant environmental impacts of the project as proposed. This process is intended to foster informed decision making in the environmental process. This section presents the alternatives to the proposed project evaluated for their ability to reduce or avoid the proposed project's significant impacts.

In response to the Notice of Preparation (NOP) issued for this EIR, a member of the public stated that the EIR should consider an alternative location for the proposed EH&S Expansion facility at the previously approved site located at Martin Luther King, Jr. Boulevard (MLK) and Canyon Crest Drive on the West Campus. This alternative location is considered in the analysis below.

### 6.2 PROJECT OBJECTIVES

The primary objectives of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and related Corporation Yard reorganization and existing EH&S buildings re-use (related projects) include the following:

- Provide a long-term, consolidated campus facility for all EH&S functions through the 2020-2021 LRDP planning horizon, including office space for 30 full-time equivalent (FTE) employees, laboratory space for analysis of waste characteristics, meeting rooms and facilities for safety training seminars, record keeping and preparation of hazardous materials assessments and manifests, and mitigation (reduction of hazardous characteristics of waste), collection and storage facilities, and processing areas for transport.
- Provide a building that will facilitate the critical services EH&S provides to the research, training, and administration community at UCR.
- Construct a building that is a model of environmental sustainability and in compliance with all State and federal health and safety standards.
- Provide a limited amount of nearby parking for EH&S staff, campus trainees, and visiting regulators.
- Implement Planning Strategy Land Use 7, which calls for the Campus to relocate parking from central campus locations to the periphery of the academic core and replace surface parking with structures, where appropriate.

- Provide a facility proximate to on-campus generators to enable safe transport from generators to the EH&S facility in accordance with State and federal regulations, while ensuring access to off-campus haul routes.
- Consolidate and relocate Printing & Reprographic Services and Mail Services into a single location that will better serve campus needs. Printing & Reprographic Services are currently located at an off-campus site; this program would better serve the campus at an on-campus location and equipment efficiency would be achieved by consolidating operations with Mail Services.
- Provide upgraded warehouse space and operational areas at the Corporation Yard.
- Consistent with campus Planning Principles, locate and design the proposed and related projects to represent optimal investment of land and capital in the future of the campus and to maximize and efficiently use available developable space on campus.

### 6.3 RANGE OF ALTERNATIVES CONSIDERED

The range of alternatives studied in the EIR must be broad enough to permit a reasoned choice by decision-makers when considering the merits of the project. The analysis should focus on alternatives that are feasible, i.e., that may be accomplished in a successful manner within a reasonable period of time, and that take economic, environmental, social, and technological factors into account. Alternatives that are remote or speculative need not be discussed.

Furthermore, the alternatives analyzed for a project should focus on reducing or avoiding significant environmental impacts associated with the project as proposed. Implementation of the proposed projects and related projects would result in potentially significant project-level environmental impacts from an increase in ambient noise levels at on- and off-campus sensitive receptors due to project construction, cumulative environmental impacts from an increase in ambient noise levels at on- and off-campus sensitive receptors due to project construction, and cumulative impacts resulting from an increase in off-campus noise due to project operational traffic. The noise impacts cannot be reduced to a less than significant level through incorporation of mitigation measures, and would remain significant and unavoidable.

Given that the significant impacts of the proposed projects and related projects stem from construction activities and operational truck traffic, the alternatives evaluation focuses on alternatives to the project location that would reduce or avoid this impact.

The Campus prepared a comparative study of possible locations for the EH&S Expansion in 2007 (SRG 2007). The study considered several locations for the proposed EH&S Expansion project:

- the proposed project site adjacent to the Corporation Yard;

- the site formerly designated for campus support use in the 2005 LRDP at the northeast corner of MLK and Canyon Crest Drive;
- Parking Lot 13, located north of South Campus Drive near the I-215/SR-60 freeway;
- the Substation site located adjacent to the I-215/SR-60 freeway on the West Campus;
- Parking Lot 6, located southwest of Big Springs Road in the southern portion of the East Campus;
- the Agricultural Operations area south of MLK on the West Campus;
- the Latter Day Saints Community Center site at the southwest corner of University Avenue and West Campus Drive;
- the greenhouses located in the southeastern portion of the East Campus; and
- the existing EH&S facility site.

The potential sites were evaluated for consistency with the 2005 LRDP; technical criteria such as utilities, access, site area, and feasibility of construction; and their effect on the project's cost and schedule. This study was used to inform the discussion of alternatives, although, as required by CEQA, the EIR alternatives discussed below were chosen for analysis based on their feasibility and their ability to meet the project objectives while avoiding or reducing impacts.

The analysis below presents both the alternatives that were considered but not carried forth for detailed evaluation and alternatives that were evaluated in detail. As required by the *State CEQA Guidelines*, a No Project Alternative is also analyzed. Each alternative that was evaluated in detail was examined for feasibility of implementation, ability to meet project objectives, and ability to reduce significant environmental impacts of the proposed projects.

## **6.4 ALTERNATIVES CONSIDERED BUT NOT EVALUATED IN DETAIL**

This section discusses alternatives that were considered but were not carried forth for detailed evaluation because they did not meet project objectives or were found to be infeasible for technical, environmental, or social reasons.

### **6.4.1 Alternative EH&S Expansion Site – Southwest Corner of University Avenue and West Campus Drive**

Under this alternative, the proposed EH&S Expansion would be developed at the site of the existing Latter Day Saints Student Center at the southwest corner of University Avenue and West Campus Drive. This alternative was suggested by community members during public planning meetings. However, this

site is not large enough to accommodate the proposed facility and would require that additional land be taken from the existing Parking Lot 1, the major parking lot for campus visitors. It would place the EH&S Expansion facility at a major entrance to the campus and would require acquisition of the Student Center property, which is not owned by the University. In addition, development of the project on part of the Parking Lot 1 site would not be consistent with the 2005 LRDP land use designation of the site for parking uses. For all of these reasons, this alternative was considered infeasible and was not evaluated in detail in this EIR.

#### **6.4.2 Alternative EH&S Expansion Site – Greenhouses Area**

Under this alternative, the proposed EH&S Expansion would be developed at the site of the existing greenhouses east of East Campus Drive, at the eastern edge of the developed area of the East Campus. This alternative was considered because the site is in a service-oriented area of the campus and has existing road access. However, it would require the demolition and reconstruction elsewhere of nine large experimental greenhouses, most likely more distant from the researchers who use them. In addition, because of the site topography, development of the project would require extensive retaining walls and costly structural adaptations. For all of these reasons, this alternative was considered infeasible and was not evaluated in detail in this EIR.

#### **6.4.3 Alternative EH&S Expansion Site – Agricultural Operations Area**

Under this alternative, the proposed EH&S Expansion would be developed on a site south of MLK and west of the Gage Canal on the West Campus, within the existing agricultural operations area. This alternative was suggested by community members during public planning meetings. Development of the project in this area would not be consistent with the 2005 LRDP land use designation and would reduce the amount of agricultural land south of MLK that is used for experimental orchards and fields. In addition, location of the EH&S Expansion in this area would require that internal roadways within the planned future uses on the West Campus north of MLK be reconfigured to provide access roadways to the facility so that EH&S vehicles could avoid traveling on the City-owned (public) MLK roadway, as required by State and federal regulations. Providing these additional roadways would significantly encroach on those planned academic uses north of MLK. For these reasons, this alternative was considered infeasible and was not evaluated in detail in this EIR.

#### **6.4.4 Alternative EH&S Expansion Site – Parking Lot 6**

Under this alternative, the proposed EH&S Expansion would be developed at the site of the existing Parking Lot 6, generally east of West Campus Drive. This site is a highly visible location near MLK and the I-215/SR-60 freeway that is planned for academic uses in the 2005 LRDP. The Campus has determined

that this site is a prime academic site that would be more suitable for academic buildings rather than a service/support use due to its proximity to both the West Campus academic core and the East Campus academic core. Use of this site for a secure, fenced facility would also eliminate pedestrian access from parking and other campus areas to the central pedestrian zones around academic buildings on campus. For these reasons, this alternative was considered infeasible and was not evaluated in detail in this EIR.

#### **6.4.5 Alternative EH&S Expansion Site – Substation Site**

Under this alternative, the proposed EH&S Expansion facility would be constructed north of Parking Lot 30 on the West Campus, adjacent to the I-215/SR-60 freeway. The substation site, owned by the City of Riverside, is within the campus-owned agricultural lands on the West Campus. Development of the project in this area would not be consistent with the current land use designation for Parking uses under the 2005 LRDP (as amended) and would reduce the amount of parking available to serve planned development on the West Campus. This site is located on the West Campus, and is therefore not located close to most hazardous waste generation locations on the East Campus. The site has no road access or adjacent utility connections and provision of these would require significant additional cost and create potential increased physical impacts. Location of the EH&S Expansion at this site would also require provision of additional internal roadways to connect the site to planned future uses on the West Campus in order to avoid having EH&S waste transport vehicles traveling on public roadways; the addition of such internal roadways would significantly encroach on planned academic uses. For these reasons, this alternative was considered infeasible and was not evaluated in detail in this EIR.

#### **6.4.6 Alternative EH&S Expansion Site – Existing EH&S Site**

Under this alternative, the proposed EH&S Expansion would be developed at the site of the existing EH&S facility on the East Campus between West Campus Drive and I-215/SR-60. However, this site is less than half the size required to accommodate the planned facility. The land adjacent to the west is owned by Caltrans and has been used for freeway improvements, and expansion options on the site of the existing EH&S facility are further limited due to steep topography that would require substantial grading and the removal of large quantities of granite. Use of campus land to the east would require the demolition of the existing Director's Residence and Superintendent's Residence, which are potentially historic resources. The area surrounding the existing facility is also a potential habitat area (UCR 2011a). The facility is located adjacent to a sharply curved campus access road, which does not allow for ease of entry by larger commercial trucks needed to serve EH&S functions. In addition, development of the project on this site would require that an interim EH&S facility be built to serve the campus during construction of the proposed EH&S Expansion. For all of these reasons, this alternative was considered infeasible and was not evaluated in detail in this EIR.

#### 6.4.7 Alternative EH&S Expansion– Dual Facilities

Under this alternative, the existing EH&S facility would remain in operation and a smaller satellite facility would be developed on the West Campus at a site northeast of Canyon Crest Drive and MLK. However, this alternative would not meet the project objective of providing a long-term, consolidated campus facility for all EH&S functions. Due to space constraints at the existing facility, this alternative would require the separation of some EH&S functions (e.g., office space, laboratory space, or meeting rooms and facilities for safety training seminars) from the areas required for waste collection, processing, storage, and preparation for transport. This would reduce the efficiency of EH&S operations and would increase the number of waste transport and other EH&S trips on- and off-campus. For these reasons, this alternative was considered infeasible and was not evaluated in detail in this EIR.

### 6.5 ALTERNATIVES EVALUATED IN DETAIL

This section presents an evaluation of the following alternatives to the proposed EH&S Expansion project: a No Project Alternative, the MLK/Canyon Crest Site Alternative, and the Parking Lot 13 Alternative. For each alternative, a brief description is first presented, followed by a summary impact analysis relative to the proposed projects, and an assessment of the degree to which the alternative would meet project objectives. The alternatives evaluated in detail are shown on **Figure 6.0-1, Alternative Locations**.

#### 6.5.1 Alternative 1: No Project

##### *Description*

Under the No Project Alternative, the proposed EH&S Expansion and Parking Lot 27 projects would not be built and the related projects (Corporation Yard reorganization and existing EH&S buildings re-use) would not occur. The existing EH&S facility would remain in use and the functions at the Corporation Yard and the off-campus Printing & Reprographics operations would remain in their current locations. However, given the land use designation of Campus Support for the proposed project site, development of the project site with campus support uses could still occur, which could result in impacts generally similar to those identified for the proposed projects.





SOURCE: Google Earth – September 2011

FIGURE 6.0-1

Alternative Locations

## ***Impact Analysis***

### **Aesthetics**

The No Project Alternative would avoid the less than significant aesthetic impacts identified in **Section 4.1, Aesthetics** of this EIR because no building or parking lot would be developed on the proposed project site and the related project sites would remain in their existing physical condition.

### **Agricultural and Forest Resources**

No important farmland is located on the sites of the proposed projects or related projects, and the sites are not used or designated for agriculture. As with the proposed projects and related projects, the No Project Alternative would not affect agricultural resources and there would be no impact. Similarly, there would be no impact on forest lands.

### **Air Quality**

The No Project Alternative would avoid the less than significant impacts identified in **Section 4.2, Air Quality** of this EIR because the proposed project site and the related project sites would remain in their existing physical condition. There would be no construction or new or increased operational emissions.

### **Biological Resources**

The No Project Alternative would avoid the less than significant impacts to biological resources identified in the Initial Study (**Appendix 1.0** of this EIR) because the proposed project site and the related project sites would remain in their existing physical condition.

### **Cultural Resources**

The No Project Alternative would avoid the less than significant impacts to cultural resources identified in the Initial Study (**Appendix 1.0** of this EIR) because the proposed project site and the related project sites would remain in their existing physical condition.

### **Geology and Soils**

The No Project Alternative would avoid the less than significant impacts related to geology and soils identified in the Initial Study (**Appendix 1.0** of this EIR) because the proposed project site and the related project sites would remain in their existing physical condition. There would be no ground-disturbing activities or new occupants at the proposed project site.

### **Greenhouse Gas Emissions**

The No Project Alternative would avoid the less than significant greenhouse gas emission impact identified in **Section 4.3, Greenhouse Gas Emissions** of this EIR because the proposed project site and the related project sites would remain in their existing physical condition. There would be no construction or new or increased operational GHG emissions.

### **Hazards and Hazardous Materials**

The No Project Alternative would avoid the less than significant impacts identified in **Section 4.4, Hazards and Hazardous Materials** of this EIR because the proposed project site and the related project sites would remain in their existing physical condition. There would be no construction or new or increased operational impacts. However, under this alternative, the existing EH&S facility would continue to handle campus-generated hazardous waste. As the campus continues to grow as planned under the 2005 LRDP as amended, the amount of such waste will continue to increase. The existing facility operates near the limit of its capacity. In the absence of adequate on-campus storage capacity, the additional waste generated on the campus would need to be off-hauled more frequently and therefore there could be a greater potential for release and exposure to hazards during the routine transport, use, disposal, or storage of hazardous materials. Indirect impacts related to hazards and hazardous materials could therefore be greater under the No Project Alternative than for the proposed projects.

### **Hydrology and Water Quality**

The No Project Alternative would avoid the less than significant impacts related to hydrology and water quality identified in **Section 4.5, Hydrology and Water Quality** of this EIR because the proposed project site and the related project sites would remain in their existing physical condition. There would be no ground-disturbing activities or construction at the proposed project site.

### **Land Use**

The No Project Alternative would avoid the less than significant impacts identified in **Section 4.6, Land Use and Planning**, of this EIR because the proposed project site and the related project sites would remain in their existing physical condition, and there would be no new uses on the project site.

### **Mineral Resources**

No mineral resources are known to be located on the sites of the proposed projects or related projects. As with the proposed projects and related projects, the No Project Alternative would not affect mineral resources and there would be no impact.

## Noise

The No Project Alternative would avoid the significant construction noise impact and the significant cumulative construction noise and operational noise impacts identified in **Section 4.7, Noise** of this EIR because the proposed project site and the related project sites would remain in their existing physical condition. There would be no construction or new uses on the project site and no increase in construction or operational noise.

## Population and Housing

The No Project Alternative would avoid the less than significant impacts related to population and housing identified in the Initial Study (**Appendix 1.0** of this EIR) because the proposed project site and the related project sites would remain in their existing physical condition. There would be no new or increased employment at the proposed project site and the current employment at the related project sites would be unchanged.

## Public Services

The No Project Alternative would avoid the less than significant impacts related to public services identified in the Initial Study (**Appendix 1.0** of this EIR) because the proposed project site and the related project sites would remain in their existing physical condition. There would be no new uses or employment at the proposed project site and the current operations at the related project sites would be unchanged.

## Recreation

The No Project Alternative would avoid the less than significant impacts related to recreation identified in the Initial Study (**Appendix 1.0** of this EIR) because the proposed project site and the related project sites would remain in their existing physical condition. There would be no new employees at the proposed project site who could create demand for increased recreational facilities and the current employment at the related project sites would be unchanged.

## Transportation and Traffic

The No Project Alternative would avoid the less than significant impacts identified in **Section 4.8, Transportation and Traffic** of this EIR because the proposed project site and the related project sites would remain in their existing physical condition. There would be no construction or new uses on the project site and no increase in construction or operational traffic.

## Utilities

The No Project Alternative would avoid the less than significant impacts related to utilities identified in the Initial Study (**Appendix 1.0** of this EIR) because the proposed project site and the related project sites would remain in their existing physical condition. There would be no new construction at the proposed project site and the current operations at the related project sites would be unchanged.

### *Ability to Accomplish Project Objectives*

The No Project Alternative (including continued operation of the existing EH&S facility) would not achieve any of the project objectives. An expanded EH&S facility would not be developed under this alternative, and therefore it would not allow EH&S to serve the waste management needs of the campus. This alternative would also not allow the Campus to provide additional parking around the East Campus academic core to reserve the central campus for higher-density academic and other uses and to relieve pressure on parking in the surrounding off-campus neighborhoods. The goals of providing upgraded warehouse space and operational areas at the Corporation Yard and consolidating campus functions currently operating off-campus would also not be achieved.

## 6.5.2 Alternative 2: MLK/Canyon Crest Site

### *Description*

Under this alternative, the proposed EH&S Expansion would be constructed at the northeast corner of MLK and Canyon Crest Drive, adjacent to the I-215/SR-60 freeway. This site was formerly designated as Campus Support, allowing development of the facility through an amendment to the 2005 LRDP approved in 2008; it is currently designated for Parking based on an amendment to the 2005 LRDP approved in 2011 (UCR 2011a). It was assumed for the purpose of this analysis that limited parking for facility staff would be provided on site as part of this alternative, and that Parking Lot 27 would still be built at its proposed location to serve overall campus needs, as well as the adjacent recreational fields. Because the EH&S Expansion facility would not be on the proposed project site, this alternative would not require use of the TAPS yard for EH&S functions and would not directly lead to the related Corporation Yard reorganization project. However, that related project is still needed and would be implemented by the Campus, and therefore it is assumed that it would occur in the future as part of this alternative. The related project to reuse the existing EH&S facility would remain unchanged under this alternative.

The Alternative 2 site consists of the northern portion of a vacant 6-acre site that was previously used as a construction lay-down area by Caltrans during freeway improvements. The site is bordered by the

freeway to the northeast, Parking Lot 30 across Canyon Crest Drive to the west, and campus-owned agricultural fields across MLK to the south. As noted above, the site is designated for parking uses under the 2005 LRDP, as amended, and development of the proposed EH&S Expansion project would require another amendment to the amended 2005 LRDP.

## ***Impact Analysis***

### **Aesthetics**

Under Alternative 2, the proposed project site would be developed only with the Parking Lot 27 project and the EH&S Expansion facility would be constructed at the MLK/Canyon Crest site instead. The alternative would result in changes to the visual character of the MLK/Canyon Crest site similar to those of the proposed projects and would result in new buildings, exterior lighting, and vehicles that would create new sources of light and glare. Alternative 2 would have similar, less than significant impacts to visual quality. Alternative 2 would provide parking only for facility staff and visitors, and the less than significant light and glare impacts of the proposed projects would be slightly reduced by Alternative 2. However, the less than significant aesthetic impacts, including light and glare impacts, related to development of Parking Lot 27 would occur with this alternative. The less than significant aesthetic impacts from changes to the related project sites at the Corporation Yard and the existing EH&S facility would be the same as those identified in **Section 4.1, Aesthetics** of this EIR.

The 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR (2011) determined that cumulative impacts related to effects on scenic vistas and visual character of the campus would be less than significant and with implementation of 2005 LRDP Planning Strategies (PS), Programs and Practices (PP), and Mitigation Measures (MM), development under the LRDP would not make a considerable contribution to the cumulative impacts. Cumulative impacts related to new sources of light and glare would be significant, but development under the LRDP would not make a considerable contribution with implementation of 2005 LRDP PSs, PPs, and MMs.

### **Agricultural and Forest Resources**

Alternative 2 would be developed on a site that is not designated as Farmland and is designated for Parking under the 2005 LRDP, as amended. It is not currently used for agriculture. As with the proposed projects and related projects, Alternative 2 would not affect agricultural resources and there would be no impact.

The 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR prepared in 2011 determined that cumulative impacts related to important farmland would be significant and unavoidable; however, similar to the

proposed projects, Alternative 2 would not contribute to these impacts. There would be no impacts to forest lands under this alternative as none are present on the campus.

### **Air Quality**

Under Alternative 2, the proposed EH&S Expansion would be developed at an alternative site and would involve construction and operational emissions similar to those of the proposed projects. Parking Lot 27 would still be built under this alternative, and the related construction and operational emissions would remain the same. The less than significant air quality impacts of the proposed projects, including impacts related to compliance with applicable air quality plans, violation of air quality standards, exposure of sensitive receptors to substantial pollutant concentrations, or creation of objectionable odors, and the cumulative impact related to cumulatively considerable increases in criteria pollutants for which the Air Basin is in nonattainment, would also be less than significant under Alternative 2.

Under Alternative 2, the operations at the Corporation Yard and existing EH&S facility would be the same as those discussed in **Section 4.2** of this EIR and there would be no change to the less than significant air quality impacts of the related projects.

### **Biological Resources**

The Alternative 2 site is a vacant, heavily disturbed parcel that does not support any sensitive biological resources. As with the proposed projects, Alternative 2 would have less than significant impacts to biological resources, including impacts related to special status species, riparian habitat or sensitive natural communities, wetlands, wildlife migration, or conflicts with policies protecting biological resources or with a habitat conservation plan. Under Alternative 2, the operations at the Corporation Yard and existing EH&S facility would be the same as those discussed in the Initial Study (**Appendix 1.0** of this EIR) and there would be no change to the less than significant biological resource impacts of the related projects.

Cumulative biological resource impacts resulting from campus growth under the 2005 LRDP were analyzed in the 2005 LRDP EIR and summarized in the Initial Study prepared for the 2005 LRDP Amendment 2 EIR. The analysis found that development under regional growth projections would cause a significant and unavoidable cumulative impact related to loss of special-status species and habitats, and that the contribution of the 2005 LRDP to this impact would be considerable. Other cumulative biological impacts would be less than significant with implementation of 2005 LRDP PSs, PPs, and MMs. The extent of development associated with Alternative 2 would be very similar to that projected under the 2005 LRDP, and the cumulative biological resource impacts under Alternative 2 would generally be the same as the less than significant impacts under the proposed projects because neither site supports any

sensitive biological resources. The contribution of Alternative 2 to the significant cumulative impact to special-status species and habitats, as well as to other less than significant cumulative biological resource impacts, would not be cumulatively considerable.

### **Cultural Resources**

The Alternative 2 site is a vacant, heavily disturbed parcel that is not known to contain any cultural resources. As with the proposed projects, Alternative 2 would have less than significant impacts to cultural resources, including impacts related to historic resources, archaeological resources, paleontological or geologic resources, or human remains. The less than significant cultural resource impacts of development of Parking Lot 27 at the proposed project site, which would occur under this alternative, would remain unchanged. Under Alternative 2, the operations at the Corporation Yard and existing EH&S facility would be the same as those discussed in the Initial Study (**Appendix 1.0** of this EIR) and there would be no change to the less than significant cultural resource impacts of the related projects.

Cumulative cultural resources impacts resulting from growth under the 2005 LRDP, as amended, were analyzed in the 2005 LRDP EIR and summarized in the Initial Study for the 2005 LRDP Amendment 2 EIR (2011). The analysis found that cumulative impacts resulting from modification of structures eligible for listing on the National or California Registers, demolition of historic or potentially historic structures, damage to previously unknown archaeological or paleontological resources, or the disturbance of human remains would be less than significant, and that with implementation of LRDP PSs, PPs, and MMs, the contribution of the 2005 LRDP as amended to these impacts would not be considerable. As with the proposed project site, the Alternative 2 site does not contain any structures or any known cultural resources, nor is it considered sensitive for such resources. The alternative's contribution to a cumulative cultural resource impact would not be considerable.

### **Geology and Soils**

Under Alternative 2, there would be grading and construction of a new building similar to that on the proposed project site and the same increase in site population. The Alternative 2 site has geologic and soil conditions generally similar to those of the proposed project site and any new construction under Alternative 2 would be subject to compliance with the same seismic safety code requirements and LRDP PSs, PPs, and MMs. Alternative 2 thus would have similar, less than significant impacts related to geology and soils, including impacts related to seismic activity, ground failure, landslides, erosion, unstable soils, expansive soils, or septic systems. In addition, Parking Lot 27 would be built on the proposed project site and would have similar, less than significant impacts related to geology and soils.



Under Alternative 2, the operations at the Corporation Yard and existing EH&S facility would be the same as those discussed in the Initial Study (**Appendix 1.0** of this EIR) and there would be no change to the less than significant geology and soils impacts of the related projects.

Cumulative impacts related to geology and soils resulting from growth under the 2005 LRDP, as amended, and regional growth were analyzed in the 2005 LRDP EIR and summarized in the Initial Study for the 2005 LRDP Amendment 2 EIR. The analysis found that cumulative impacts related to effects from seismic ground shaking would be significant. The contribution of development under the 2005 LRDP, as amended, to this impact would not be considerable with implementation of LRDP PSs and PPs. Cumulative impacts related to excavation of soils, unstable soils, and expansive soils would be less than significant, and the contribution of development under the 2005 LRDP as amended to this impact would not be considerable with implementation of 2005 LRDP PSs and PPs. The cumulative geology and soils impacts under Alternative 2 would generally be the same as the less than significant impacts under the proposed projects because neither site contains any unique geologic or soil conditions. The contribution of Alternative 2 to these less than significant cumulative impacts would not be cumulatively considerable.

### **Greenhouse Gas Emissions**

Implementation of Alternative 2 would generate greenhouse gas (GHG) emissions, either directly or indirectly. These would be very similar to those of the proposed projects and the impact would likewise be less than significant. Parking Lot 27 would still be built under this alternative, and the related emissions would remain the same. Under Alternative 2, the operations at the Corporation Yard and existing EH&S facility would be the same as those discussed in **Section 4.3, Greenhouse Gas Emissions** of this EIR and there would be no change to the less than significant GHG emissions impacts of the related projects.

As the impact from a project's GHG emissions is essentially a cumulative impact, the analysis above presents the cumulative impact of the alternative.

### **Hazards and Hazardous Materials**

Under Alternative 2, the off-campus truck route for removal of hazardous waste from the EH&S facility would be different from that of the proposed project site, and would not route waste-hauling trucks through residential neighborhoods along Watkins Drive and Blaine Street or past the Child Development Center on Watkins Drive. With this location, there would be no potential for waste removal trucks to take an unauthorized route southward along Watkins Drive from the campus because the facility would be located on the west side of the I-215/SR-60 freeway. Waste removal trucks would access the freeway at MLK, adjacent to the Alternative 2 site. Alternative 2 therefore has the potential for a small reduction in

the less than significant impacts associated with off-campus transport of hazardous waste. However, the prohibition on EH&S vehicles transporting campus hazardous wastes on public roadways would restrict access to the Alternative 2 site for daily EH&S campus waste collection vehicles to a single route by way of Canyon Crest Drive where it crosses under the freeway. Most of the hazardous waste generation locations on campus are and would continue to be located on the East Campus. An emergency or accident on either Canyon Crest Drive or the freeway that blocked this route would slow or cut off access to the facility from the campus, impairing the ability of EH&S staff to provide waste removal services or respond to hazardous materials incidents on campus and potentially increasing risks associated with hazardous materials handling or release on campus. These risks could be greater than those of the proposed projects and could have potentially significant impacts with regard to emergency access and emergency response. This alternative would avoid the less than significant project impact related to the potential for licensed waste removal trucks to take unauthorized routes through adjacent neighborhoods. All other impacts related to hazards and hazardous materials would remain unchanged under Alternative 2. Under Alternative 2, the operations at the Corporation Yard and existing EH&S facility would be the same as those discussed in **Section 4.4, Hazards and Hazardous Materials** of this EIR and there would be no change to the less than significant hazards and hazardous materials impacts of the related projects.

Cumulative impacts related to hazards and hazardous materials resulting from growth under the 2005 LRDP as amended and regional growth were analyzed in the 2005 LRDP Amendment 2 EIR, which found that cumulative impacts resulting from the use, transport, and disposal of hazardous materials or risk of upset from a release of hazardous materials would be less than significant, and that the contribution of development under the 2005 LRDP as amended to these impacts would not be considerable with implementation of LRDP PSs and PPs. The cumulative hazards and hazardous materials impacts under Alternative 2 would generally be similar to the less than significant impacts under the proposed projects, and the contribution of Alternative 2 to these less than significant cumulative impacts would not be cumulatively considerable.

### **Hydrology and Water Quality**

The Alternative 2 site is located in an area with similar hydrologic and groundwater conditions as the proposed project site and would involve a similar type and scale of development. The same regulatory controls and requirements, such as preparation of a SWPPP, would apply to this alternative and would avoid potentially significant water quality impacts. Alternative 2 would have a similar or slightly reduced area of new impervious surfaces in comparison to the proposed projects, and would have similar or slightly reduced, less than significant runoff-related impacts. Under this alternative, Parking Lot 27 would be built at the proposed project site and, as with the proposed projects, would have less than

significant impacts to hydrology and water quality. Alternative 2 would therefore, like the proposed projects, result in less than significant impacts with respect to hydrology and water quality issues, including water quality impacts and groundwater deficits. Under Alternative 2, the operations at the Corporation Yard and existing EH&S facility would be the same as those discussed in **Section 4.5, Hydrology and Water Quality** of this EIR and there would be no change to the less than significant hydrology and water quality impacts of the related projects.

Cumulative hydrology and water quality impacts resulting from growth under the 2005 LRDP and regional growth were analyzed in the 2005 LRDP EIR and summarized in the Initial Study for the 2005 LRDP Amendment 2 EIR. The analysis found that cumulative impacts related to altering drainage patterns in a manner that could cause flooding, erosion, or siltation would not be significant. The 2005 LRDP Amendment 2 EIR analyzed the cumulative effects related to consumptive use of groundwater and found that cumulative development, including campus development under the amended LRDP, would not substantially deplete groundwater supplies and the cumulative impact would be less than significant (UCR 2011a). Cumulative impacts related to violating water quality standards, exceeding storm drain capacity, flooding, seiche, tsunami, or mudflow would be less than significant, and development under the 2005 LRDP as amended would not make a considerable contribution to these impacts with implementation of the relevant LRDP PSs, PPs, and MMs. As with the proposed projects, the contribution of Alternative 2 to these less than significant cumulative impacts would not be cumulatively considerable.

### **Land Use**

The Alternative 2 site is located in an area of the West Campus planned for future development under the 2005 LRDP as amended.

The 2005 LRDP Amendment 2 (2011) added a planned School of Medicine (SOM) to be sited at the northeast corner of Iowa and MLK on the West Campus and increased the planned density of the West Campus Academic core. It also deleted the location of one West Campus parking structure. Under the LRDP, as amended, the Alternative 2 site is designated entirely for parking. Development of a portion of the site with the EH&S Expansion under this alternative thus would conflict with applicable land use plans and policies because it would be inconsistent with the LRDP land use designation. In addition, because Alternative 2 would require additional internal roadways that would reduce the land area available for planned uses, it would impede implementation of the adopted land use plan for the West Campus. Alternative 2 would therefore result in land use impacts greater than those analyzed for the proposed projects.

The EH&S Expansion would require approximately 3 acres of the 6-acre site. The resulting reduction of the area available for parking to about 3 acres would reduce the functionality of the proposed parking structure overall and would not accommodate a larger parking structure needed to serve the West Campus academic core, as well as the west end of the East Campus academic core, to provide adequate stacking space on city and campus roads, and to provide total capacity required under the LRDP as amended. This alternative thus would not allow for provision of adequate total parking capacity to serve future Campus uses. For these reasons, Alternative 2 would have a significant impact related to land use. No mitigation is feasible, and the impact would remain significant and unavoidable.

The 2005 LRDP land use plan, as amended, includes Academic and SOM land uses to the west and northwest, with continued campus agricultural uses to the south across MLK. Development of the EH&S Expansion at this site would not divide an established community and land use impacts from this alternative would, like those of the proposed projects, be less than significant with regard to this criterion. Under this alternative, the Parking Lot 27 project would be built on the proposed project site and, as with the proposed projects, would have less than significant land use impacts. Because the Alternative 2 site is not located near existing residences or the Child Development Center, it would slightly reduce the less than significant impacts of the proposed projects with regard to compatibility of land uses. Under Alternative 2, the operations at the Corporation Yard and existing EH&S facility would be the same as those discussed in **Section 4.6, Land Use and Planning** of this EIR and there would be no change to the less than significant land use impacts of the related projects.

Cumulative land use impacts resulting from campus growth under the 2005 LRDP Amendment 2 in addition to regional growth were analyzed in the 2005 LRDP Amendment 2 EIR, which determined that cumulative development, including development under the amended 2005 LRDP, would not be substantially incompatible with existing or planned land uses, and that cumulative development, including development under the 2005 LRDP as amended, would not conflict with applicable plans and policies. Therefore, cumulative impacts would be less than significant. Alternative 2 would generally have land use impacts greater than those of the proposed projects; however, its contribution to the less than significant cumulative land use impacts would also not be cumulatively considerable.

### **Mineral Resources**

No mineral resources are known to be located on the Alternative 2 site. As with the proposed projects and related projects, Alternative 2 would not affect mineral resources and there would be no impact.

## Noise

Under Alternative 2, the proposed EH&S Expansion would be built at a location where there are no nearby sensitive receptors. Under the LRDP as amended, nearby land uses would include Academic and SOM uses that would not be considered sensitive receptors. In the absence of nearby sensitive receptors, the impact related to construction noise would be substantially reduced under Alternative 2 as compared to the proposed projects and mitigation would not be required. Although operational noise from the EH&S Expansion would be similar under Alternative 2 to that of the proposed projects, the location of the alternative site at a greater distance from any sensitive receptors would avoid this less than significant impact. Parking Lot 27 would be built at the proposed project site, and operational noise impacts of this project would be unchanged under this alternative. Under Alternative 2, construction and operations at the Corporation Yard would be the same as those discussed in the Initial Study (**Appendix 1.0** of this EIR) and there would be no change to the noise impacts of this related project. Construction noise impacts at the Corporation Yard would not be reduced by this alternative and would be significant and unavoidable. There would be no exterior construction or related noise with reuse of the existing EH&S facility and operational impacts for this related project would be the same as those discussed in **Section 4.7, Noise** of this EIR. There would be no change to the less than significant noise impacts of this related project.

Cumulative noise impacts resulting from campus growth under the 2005 LRDP as amended were analyzed in the 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR (2011), which found that with implementation of the relevant LRDP PS and PPs, campus development under the 2005 LRDP as amended would not expose on-campus residential uses to noise levels exceeding the State standards. Implementation of the 2005 LRDP would increase local traffic volumes, and even with implementation of the relevant PPs it would cause a substantial permanent increase in noise along certain affected roadways (Blaine Street east of Iowa Avenue and Canyon Crest Drive) and the impact along these roadway segments would be significant. Because Alternative 2 would not add traffic to the affected segment of Blaine Street, it would not contribute to the cumulative noise impacts under the 2005 LRDP as amended.

Construction on the campus under the 2005 LRDP as amended could involve multiple projects simultaneously, resulting in temporary significant and unavoidable cumulative increases in ambient noise levels and exposing persons on campus to excessive groundborne vibration. These cumulative impacts would be significant and unavoidable even with implementation of the relevant PPs and MMs. However, there would be no concurrent construction projects in the vicinity of the Alternative 2 site during its anticipated construction period, and it would not be located near sensitive receptors. For these reasons, the contribution of Alternative 2 to the cumulative noise impacts under the 2005 LRDP, as amended, would be lower than the noise impacts under the proposed projects and would not be

cumulatively considerable. In addition, construction-related traffic from multiple projects occurring at the same time could result in temporary increases in ambient noise levels, although the cumulative impact would be less than significant with implementation of relevant programs and practices. Because it would not be located near sensitive receptors, Alternative 2 would make no contribution to this less than significant cumulative noise impact. Under Alternative 2, Parking Lot 27 would be built at the proposed project location and the related projects would be constructed at their proposed locations, and the contribution to cumulative construction noise impacts of these projects would be similar to those of the proposed project and related projects. These impacts would remain significant and unavoidable.

### **Population and Housing**

Development of Alternative 2 would result in a long-term increase of approximately 8 employees on campus, the same as the proposed projects. The population and housing impacts would remain less than significant.

Cumulative population and housing impacts resulting from campus growth under the 2005 LRDP as amended and regional growth were analyzed in the 2005 LRDP Amendment 2 EIR, which determined that impacts related to population growth, increased demand for housing, displacement of existing residents, and construction of replacement housing would be less than significant. Development under the 2005 LRDP as amended would not make a considerable contribution to cumulative impacts with implementation of relevant PSs. Alternative 2 would increase campus population by the same number of persons as the proposed EH&S Expansion project, an increase that would be well within the population increase analyzed for the 2005 LRDP, as amended. Therefore, similar to the proposed projects, this alternative would not make a cumulatively considerable contribution to the less than significant cumulative population and housing impacts.

### **Public Services**

Alternative 2 would involve the development of a new EH&S Expansion facility identical to that under the proposed projects and, like the proposed projects, would cause less than significant impacts related to the provision of fire and law enforcement services. Similar to the proposed projects, this alternative would not contribute to a need for the provision of new or altered fire or police protection facilities. Under Alternative 2, the operations at the Corporation Yard and existing EH&S facility would be the same as those discussed in the Initial Study (**Appendix 1.0** of this EIR) and there would be no change to the less than significant public services impacts of the related projects.

Cumulative public services impacts resulting from campus growth under the 2005 LRDP, as amended, and regional growth were analyzed in the 2005 LRDP Amendment 2 EIR. The 2005 LRDP Amendment 2

EIR determined that cumulative impacts related to the provision of fire protection, law enforcement, schools, and libraries would be less than significant. Alternative 2 would not increase demand for public services in excess of the demand analyzed in the 2005 LRDP Amendment 2 EIR and, like the proposed projects, would not make a cumulatively considerable contribution to the less than significant cumulative public service impacts.

### **Recreation**

Alternative 2 would involve development of a new EH&S Expansion facility with a growth in employment and related demand for recreational facilities identical to that of the proposed projects and, like the proposed projects, would cause less than significant impacts related to recreational facilities. Under Alternative 2, the operations at the Corporation Yard and existing EH&S facility would be the same as those discussed in the Initial Study (**Appendix 1.0** of this EIR) and there would be no change to the less than significant recreation impacts of the related projects.

Cumulative impacts on recreational facilities resulting from campus growth under the 2005 LRDP and regional growth were analyzed in the 2005 LRDP EIR and summarized in the Initial Study for the 2005 LRDP Amendment 2 EIR. The analysis determined that impacts related to increased demand for recreational space, construction of recreational facilities, and the conversion of recreational fields to non-recreational uses would be less than significant. Development under the 2005 LRDP as amended would not make a considerable contribution to cumulative impacts with implementation of the relevant LRDP PSs. Alternative 2 would not increase demand for recreational facilities compared to the 2005 LRDP projections and, like the proposed projects, would not make a cumulatively considerable contribution to the less than significant cumulative impacts on recreation facilities.

### **Transportation and Traffic**

Alternative 2 would involve the same number of new operational vehicle trips as the proposed projects, but would result in different traffic circulation patterns due to the location of the Alternative 2 site on the West Campus. Little to no project-related traffic would be routed through the intersection of Blaine Street and Rustin Avenue, which operates at a deficient LOS E during the morning peak hour, and this alternative would therefore avoid or reduce this less than significant impact of the proposed projects. However, some traffic from the proposed EH&S Expansion would likely be routed through the intersection of Canyon Crest and MLK, which currently operates at LOS F during the morning and evening peak hours and is projected to operate at LOS F during both peak hours under 2020 conditions (Fehr & Peers 2011). This alternative would generate the same number of peak-hour trips as the proposed projects (approximately 12 in the AM peak hour and 13 in the PM peak hour); however, these trips would

not add to the critical turn movements that cause this intersection to operate at LOS F under current conditions. The addition of project-related traffic would not increase congestion at this intersection and the impact would be less than significant.

Construction traffic would likewise have a different traffic circulation pattern and would not be routed through the intersection of Blaine Street and Rustin Avenue. With the Alternative 2 location, there would be no potential for construction vehicles to take an unauthorized route southward along Watkins Drive in the vicinity of Valencia Hill Drive because the facility would be located on the western side of the I-215/SR-60 freeway. Alternative 2 would therefore avoid or reduce the less than significant traffic impact of the proposed projects. However, construction traffic from the proposed EH&S Expansion would likely be routed through the intersection of Canyon Crest and MLK, which currently operates at LOS F during the morning and evening peak hours and is projected to operate at LOS F during both peak hours under 2020 conditions (Fehr & Peers 2011). The addition of project-related construction traffic would not increase congestion at this intersection, and the impact would be less than significant. Under this alternative, Parking Lot 27 would be built at the proposed project site; however, because this proposed project involves only minor redistribution of existing trips, it would have less than significant impacts, similar to the proposed projects.

Under Alternative 2, construction and operational traffic at the Corporation Yard would be the same as those discussed in **Section 4.8** of this EIR and there would be no change to the traffic impacts of this related project. Construction and operational traffic impacts at the existing EH&S facility would be the same as those discussed in **Section 4.8** of this EIR and there would be no change to the less than significant traffic impacts of this related project.

Cumulative transportation and traffic impacts resulting from campus growth under the 2005 LRDP as amended and regional growth were analyzed in the 2005 LRDP Amendment 2 EIR, which found that impacts related to increased traffic volumes and construction-related vehicle trips would be significant and unavoidable, and that development under the 2005 LRDP as amended would make a considerable contribution to cumulative impacts even with implementation of relevant PSs, PPs, and MMs. Implementation of the 2005 LRDP as amended would also exceed established levels of service designated by the Riverside County Congestion Management Program, which would be a significant and unavoidable impact. Other cumulative transportation- and traffic-related impacts would be less than significant with implementation of the relevant LRDP PSs and PPs. Implementation of Alternative 2 would make a contribution to cumulative impacts similar to that of the proposed projects and, as with the proposed project, the contribution would not be cumulatively considerable.



## Utilities

Alternative 2 would require provision of utilities similar to that of the proposed projects, and the alternative site is located in an area where extension of utilities could occur from existing infrastructure and within existing roadways or the project site itself. Impacts related to the provision of utilities would be similar to those of the proposed projects and would be less than significant. Under Alternative 2, construction and operations at the Corporation Yard and existing EH&S facility would be the same as those discussed in the Initial Study (**Appendix 1.0** of this EIR) and there would be no change to the less than significant utilities impacts of the related projects.

Cumulative impacts on utilities resulting from campus growth under the 2005 LRDP as amended and regional growth were analyzed in the 2005 LRDP Amendment 2 EIR, which found that cumulative impacts related to the construction of water treatment facilities and wastewater conveyance systems, additional demand for water and electricity, and generation of solid waste and wastewater would be less than significant and that development under the 2005 LRDP, as amended, would not make a considerable contribution to cumulative impacts. Implementation of the 2005 LRDP Amendment 2 would also comply with applicable regulations related to solid waste and the impact would be less than significant. Development under the 2005 LRDP, as amended, would not cause an exceedance of wastewater treatment requirements, and the cumulative impacts of LRDP development together with regional growth would be less than significant. The increase in demand for utilities under Alternative 2 would be the same as for the proposed projects and would not make a considerable contribution to the less than significant cumulative utilities impacts.

### *Ability to Accomplish Project Objectives*

Alternative 2 would meet the project objectives of providing a long-term, consolidated campus facility for all EH&S functions with space for all EH&S programs; providing a building that will facilitate the critical services EH&S provides to the research, training, and administration community at UCR; constructing a building that is a model of environmental sustainability and in compliance with all State and federal health and safety standards; and providing a limited amount of nearby parking for EH&S staff, campus trainees, and visiting regulators. It would also facilitate development of the related EH&S buildings re-use project and would thus meet the objective of consolidating and relocating Printing & Reprographic Services and Mail Services into a single location that would better serve campus needs.

Alternative 2 would only partially meet the project objective of providing a facility proximate to on-campus generators to enable safe transport from generators to the EH&S facility in accordance with State and federal regulations, while ensuring access to off-campus haul routes. The Alternative 2 site is

located on the West Campus, on the opposite side of the freeway from most campus hazardous waste generation locations on the East Campus. Because of EH&S' operating restrictions on travel on public roadways, access to the facility from both the East and West Campuses would be limited to a single route that would be vulnerable to traffic congestion or emergency closures, potentially inhibiting safe transport from on-campus generators.

Alternative 2 would not meet the project objective of locating and designing the proposed and related projects to represent optimal investment of land and capital in the future of the campus and to maximize and efficiently use available developable space on campus, consistent with campus planning principles. This alternative would impede development of approved land uses under the 2005 LRDP (as amended), which have been planned through the LRDP process to make efficient use of the limited land area for development on both the East and West Campuses. Because it would not be consistent with the existing land use designation, it would also require an LRDP amendment in order to be approved and implemented.

Because it would include Parking Lot 27 at the proposed project site, Alternative 2 would meet the project objective of relocating parking from central campus locations to the periphery of the academic core and replacing surface parking with structures. However, Alternative 2 would conflict with the LRDP designation of the site for development of a parking structure that would also further this objective.

### **6.5.3 Alternative 3: Parking Lot 13**

Under this alternative, the proposed EH&S Expansion facility would be constructed on the site of the existing Parking Lot 13 south of Big Springs Road near the eastern edge of the East Campus. Parking Lot 13 has a total area of about 8 acres. The EH&S Expansion would occupy approximately 3 acres in the western portion of the parking lot and the rest of the parking lot would remain unchanged. For the purpose of this analysis, it was assumed that EH&S facility staff and visitors would park in the unaffected portion of Parking Lot 13. Under this alternative, Parking Lot 27 would still be built on the proposed project site and would serve overall campus needs, as well as the adjacent recreational fields. Because the EH&S Expansion facility would not be located on the proposed project site, this alternative would not require use of the TAPS yard for the EH&S functions and would not require the reorganization of the Corporation Yard. However, that related project is still needed and would be implemented by the Campus, and therefore it is assumed that it would occur in the future as part of this alternative. The related project to reuse the existing EH&S buildings would remain unchanged under this alternative.

The alternative site is located in an area of the East Campus that is developed with academic and student residential uses. Adjacent buildings include the Salinity Laboratory to the south, the Chemical Sciences

building to the west, student residences and parking to the north, and campus-owned orchards to the southeast. Off-campus single- and multi-family residences are located at the eastern end of Parking Lot 13. The site is designated for Academic uses under the 2005 LRDP, as amended. Campus support facilities, such as an EH&S facility, are an allowable use in areas designated academic under the 2005 LRDP, as amended.

### **Aesthetics**

Alternative 3 would construct a new building and install exterior lighting at the alternative site, which would change its visual character and would create new sources of light and glare. However, because this site is in the interior of the campus, the changes would be observed mainly by the on-campus population. Alternative 3 would have similar, less than significant impacts to visual character as the proposed projects. Because Parking Lot 27 and its associated lighting would be constructed on the proposed project site, the less than significant light and glare impacts associated with the proposed projects would be similar for Alternative 3. The less than significant aesthetic impacts from changes at the Corporation Yard and the existing EH&S facility would be the same as those identified in **Section 4.1, Aesthetics** of this EIR.

The 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR (2011) determined that cumulative impacts related to effects on scenic vistas and visual character of the campus would be less than significant and with implementation of relevant LRDP PSs, PPs, and MMs, development under the LRDP would not make a considerable contribution to any cumulative impacts. Cumulative impacts related to new sources of light and glare would be significant, but development under the LRDP, as amended, would not make a considerable contribution with implementation of relevant LRDP PSs, PPs, and MMs.

### **Agricultural and Forest Resources**

The Alternative 3 site is almost completely paved and is not used or designated for agriculture. As with the proposed projects and related projects, Alternative 3 would not affect agricultural or forest resources and there would be no impact.

The 2005 LRDP and the 2005 LRDP Amendment 2 EIR (2011) determined that cumulative impacts on agricultural resources of campus growth under the 2005 LRDP as amended, along with other reasonably foreseeable regional growth, would be significant and unavoidable; however, neither Alternative 3 nor the proposed projects and related projects would contribute to these impacts.

## Air Quality

Under Alternative 3, the proposed EH&S Expansion facility would be developed at an alternative site and would involve construction and operational impacts generally similar to those of the proposed projects. The construction-phase emissions could be slightly higher at this site as it would be necessary to remove a portion of the parking lot paving prior to project construction. Parking Lot 27 would be built under this alternative and its related construction (and operational) impacts would be the same as for the proposed projects. The less than significant air quality impacts of the proposed projects, including impacts related to compliance with applicable air quality plans, violation of air quality standards, exposure of sensitive receptors to substantial pollutant concentrations, or creation of objectionable odors, and the cumulative impact related to cumulatively considerable increases in criteria pollutants for which the Air Basin is in nonattainment, would also be less than significant under Alternative 3. Under Alternative 3, the changes at the Corporation Yard and existing EH&S buildings would be the same as those discussed in **Section 4.2** of this EIR and there would be no change to the less than significant air quality impacts of the related projects.

## Biological Resources

The Alternative 3 site is almost completely paved and does not support any sensitive biological resources. Vegetation is limited to a few rows of landscaping trees within the existing parking lot. As with the proposed projects, Alternative 3 would have less than significant impacts to biological resources, including impacts related to special status species, riparian habitat or sensitive natural communities, wetlands, wildlife migration, or conflicts with policies protecting biological resources or a habitat conservation plan. Parking Lot 27 would be built under this alternative and its less than significant impacts to biological resources would be the same as for the proposed projects. Under Alternative 3, the changes at the Corporation Yard and existing EH&S buildings would be the same as those discussed in the Initial Study (**Appendix 1.0** of this EIR) and there would be no change to the less than significant biological resource impacts of the related projects.

Cumulative biological resource impacts resulting from growth under the 2005 LRDP, as amended, were analyzed in the 2005 LRDP EIR and summarized in the Initial Study for the 2005 LRDP Amendment 2 EIR. The analysis found that development under the 2005 LRDP, together with other regional growth, would cause a significant and unavoidable cumulative impact related to loss of special-status species and habitats, and that the contribution of the 2005 LRDP, as amended, to this impact would be considerable. Other cumulative biological impacts would be less than significant with implementation of relevant LRDP PSs, PPs, and MMs. The biological resource impacts under Alternative 3 would generally be the same as the less than significant impacts under the proposed projects because the neither site supports

any sensitive biological resources. The contribution of Alternative 3 to the significant cumulative impact to special-status species and habitats, as well as to other less than significant cumulative biological resource impacts, would not be cumulatively considerable.

### **Cultural Resources**

The Alternative 3 site is almost completely paved and has been heavily disturbed by past grading and paving. It is not known to contain any cultural resources. As with the proposed projects, Alternative 3 would have less than significant impacts to cultural resources, including impacts related to historic resources, archaeological resources, paleontological or geologic resources, or human remains. Parking Lot 27 would be built under this alternative and its less than significant impacts to cultural resources would be the same as for the proposed projects. Under Alternative 3, the changes at the Corporation Yard and existing EH&S buildings would be the same as those discussed in the Initial Study (**Appendix 1.0** of this EIR) and there would be no change to the less than significant cultural resource impacts of the related projects.

Cumulative cultural resources impacts resulting from growth under the 2005 LRDP were analyzed in the 2005 LRDP EIR and summarized in the Initial Study for the 2005 LRDP Amendment 2 EIR. The analysis found that cumulative impacts resulting from modification of structures eligible for listing on the National or California Registers, demolition of historic or potentially historic structures, damage to previously unknown archaeological or paleontological resources, or the disturbance of human remains would be less than significant, and that the contribution of the 2005 LRDP to these impacts would not be considerable with implementation of relevant LRDP PSs, PPs, and MMs. As with the proposed project site, the Alternative 3 site does not contain any structures or any known cultural resources, nor is it considered sensitive for such resources. The alternative's contribution to a cumulative cultural resource impact would not be considerable.

### **Geology and Soils**

Under Alternative 3, there would be site clearance, grading, and construction of a new building similar to that on the proposed project site, as well as the same increase in site population. Parking Lot 27 would be built on the proposed project site under this alternative. The Alternative 3 site has geologic and soil conditions generally similar to those of the proposed project site and any new construction under Alternative 3 would be subject to compliance with the same seismic safety code requirements and relevant LRDP PSs, PPs, and MMs as the proposed projects. Alternative 3 thus would have similar, less than significant impacts related to geology and soils, including impacts related to seismic activity, ground failure, landslides, erosion, unstable soils, expansive soils, or septic systems. The less than significant

impacts related to geology and soils of the Parking Lot 27 project would be the same as for the proposed projects. Under Alternative 3, the changes at the Corporation Yard and existing EH&S buildings would be the same as those discussed in other the Initial Study (**Appendix 1.0** of this EIR) and there would be no change to the less than significant geology and soils impacts of the related projects.

Cumulative impacts related to geology and soils resulting from growth under the 2005 LRDP and regional growth were analyzed in the 2005 LRDP EIR and summarized in the Initial Study for the 2005 LRDP Amendment 2 EIR. The analysis found that cumulative impacts related to effects from seismic ground shaking would be significant. With implementation of relevant LRDP PSs and PPs, the contribution of development under the 2005 LRDP, as amended, to this impact would not be considerable. Cumulative impacts related to excavation of soils, unstable soils, and expansive soils would be less than significant, and the contribution of development under the 2005 LRDP as amended to this impact would not be considerable with implementation of PSs and PPs. The cumulative geology and soils impacts under Alternative 3 would generally be the same as the less than significant impacts under the proposed projects because neither site contains any unique geologic or soil conditions. The contribution of Alternative 3 to these less than significant cumulative impacts would not be cumulatively considerable.

### **Greenhouse Gas Emissions**

Implementation of Alternative 3 would generate GHG emissions, either directly or indirectly. These would be very similar to those of the proposed projects and the impact would likewise be less than significant. Under Alternative 3, the changes at the Corporation Yard and existing EH&S buildings would be the same as those discussed in **Section 4.4** of this EIR and there would be no change to the less than significant GHG emissions impacts of the related projects.

As the impact from a project's GHG emissions is essentially a cumulative impact, the analysis above presents the cumulative impact of the alternative.

### **Hazards and Hazardous Materials**

Under Alternative 3, the off-campus truck route for removal of hazardous waste from the EH&S facility would be different from that of the proposed project site, and would not route waste-hauling trucks to use Watkins Drive and Blaine Street to access the freeway. Waste removal trucks would be expected to use campus roadways and access the freeway at University Avenue. Alternative 3 therefore has the potential for a small reduction in the less than significant impacts associated with off-campus transport of hazardous waste. However, with this location, there would still be a potential for waste removal trucks to take an unauthorized route along Big Springs Road to the east and then southward along Watkins Drive as an alternative to reach the SR-60 freeway. The mitigation identified in **Section 4.4, Hazards and**

**Hazardous Materials**, requiring provision of a specified truck route to licensed waste haulers, would be required to further reduce the less than significant impact associated with off-campus transport of hazardous waste. All other impacts related to hazards and hazardous materials would remain unchanged under Alternative 3, including the less than significant impacts related to hazards and hazardous materials associated with the Parking Lot 27 project. Under Alternative 3, the changes at the Corporation Yard and existing EH&S facility would be the same as those discussed in **Section 4.4** of this EIR and there would be no change to the less than significant hazards and hazardous materials impacts of the related projects.

Cumulative impacts related to hazards and hazardous materials resulting from growth under the 2005 LRDP as amended and regional growth were analyzed in the 2005 LRDP Amendment 2 EIR, which found that cumulative impacts resulting from the use, transport, and disposal of hazardous materials, or risk of upset from a release of hazardous materials would be less than significant, and that the contribution of development under the 2005 LRDP, as amended, to these impacts would not be considerable with implementation of relevant LRDP PSs and PPs. The cumulative hazards and hazardous materials impacts under Alternative 3 would generally be similar to the less than significant impacts under the proposed projects, and the contribution of Alternative 3 to these less than significant cumulative impacts would not be cumulatively considerable.

### **Hydrology and Water Quality**

The Alternative 3 site is almost entirely paved, and development of the EH&S Expansion on this site would not increase impermeable surfaces compared to existing conditions. Alternative 3 would have a reduced area of new impervious surfaces in comparison to the proposed projects, and therefore would have similar but slightly reduced runoff-related impacts. This alternative site is located in an area with similar hydrologic and groundwater conditions as the proposed project site and would involve a similar type and scale of development. The same regulatory controls and requirements, such as preparation of a SWPPP, would apply to this alternative and would avoid potentially significant water quality impacts. Alternative 3 would therefore, like the proposed project, result in less than significant impacts with respect to hydrology and water quality issues. The less than significant impacts related to hydrology and water quality of the Parking Lot 27 project would be the same as for the proposed projects. Under Alternative 3, the changes at the Corporation Yard and existing EH&S facility would be the same as those discussed in **Section 4.5** of this EIR and there would be no change to the less than significant hydrology and water quality impacts of the related projects.

Cumulative hydrology and water quality impacts resulting from growth under the 2005 LRDP and regional growth were analyzed in the 2005 LRDP EIR and summarized in the Initial Study for the 2005

LRDP Amendment 2 EIR. The analysis found that cumulative impacts related to altering drainage patterns in a manner that could cause flooding, erosion, or siltation would be significant. Development under the 2005 LRDP as amended would not make a considerable contribution to these impacts with implementation of the relevant LRDP PSs, PPs, and MMs. The 2005 LRDP Amendment 2 EIR analyzed the cumulative effects related to consumptive use of groundwater and found that cumulative development, including campus development under the amended LRDP, would not substantially deplete groundwater supplies and the cumulative impact would be less than significant (UCR 2011a). Cumulative impacts related to violating water quality standards, exceeding storm drain capacity, flooding, seiche, tsunami, or mudflow would be less than significant, and development under the 2005 LRDP, as amended, would not make a considerable contribution to these impacts with implementation of the relevant LRDP PSs, PPs, and MMs. As with the proposed project, the contribution of Alternative 3 to these less than significant cumulative impacts would not be cumulatively considerable.

### **Land Use**

The Alternative 3 site is located in an area of the East Campus planned for future development with academic uses under the 2005 LRDP, as amended. The amended 2005 LRDP land use plan designates the parking lot site and the lands to the west and southwest for academic uses, with residential uses to the north and non-institutional campus uses to the south. Development of the EH&S Expansion at this site would not divide an established community or conflict with applicable land use plans and policies (the 2005 LRDP, as amended) because campus support facilities are an allowable use within areas designated academic, and land use impacts from this alternative would, like those of the proposed projects, be less than significant. However, development of the EH&S Expansion at the Alternative 3 site would occupy a prime academic use location, and would not serve the relevant LRDP goals related to increasing density and providing academic uses in the central portion of the East Campus. Because the Alternative 3 site is not located near the Child Development Center, it would slightly reduce the less than significant impacts of the proposed projects with regard to compatibility of land uses. Under this alternative, the Parking Lot 27 project would be developed on the proposed project site and would have less than significant land use impacts similar to those of the proposed projects. Under Alternative 3, the changes at the Corporation Yard and existing EH&S facility would be the same as those discussed in **Section 4.6** of this EIR and there would be no change to the less than significant land use impacts of the related projects.

Cumulative land use impacts resulting from campus growth under the 2005 LRDP, as amended, as well as other reasonably foreseeable regional growth were analyzed in the 2005 LRDP Amendment 2 EIR, which determined that the cumulative impacts related to incompatibility with existing and planned adjacent land uses, or inconsistency with adopted plans and policies, would be less than significant. Alternative 3 would generally have land use impacts similar to those of the proposed projects, and its



contribution to the less than significant cumulative land use impacts would not be cumulatively considerable.

### **Mineral Resources**

No mineral resources are known to be located on the Alternative 3 site. As with the proposed projects and related projects, Alternative 3 would not affect mineral resources and there would be no project-level or cumulative impact.

### **Noise**

Under Alternative 3, the proposed EH&S Expansion would be built at a location where there are nearby sensitive receptors (student residences) that could be affected by construction noise, and construction traffic would be routed near sensitive receptors. MMs to reduce construction noise would also be applicable to Alternative 3. The construction noise impacts would not be substantially reduced under Alternative 3 as compared to the proposed projects and, as with the proposed projects, would be significant and unavoidable. Operational noise from the EH&S Expansion would be similar under Alternative 3 to that of the proposed projects and, as with the proposed projects, impacts would be less than significant. Parking Lot 27 would be built at the proposed project site, and would have a less than significant operational traffic noise impact similar to those of the proposed projects due to vehicular noise from vehicles using the parking lot. Because of the site location in the central East Campus area, employee trips to and from the site would likely be distributed along several roadways on- and off-campus, and there would not be a sufficient number of trips added to any single roadway segment to substantially increase traffic noise. Operational noise impacts would remain less than significant. Under Alternative 3, changes at the Corporation Yard would be the same as those discussed in other sections of this EIR and therefore construction noise impacts at the Corporation Yard would not be reduced by this alternative and would be significant and unavoidable. The operational impacts at the existing EH&S buildings would be the same as those discussed in **Section 4.7** of this EIR and there would be no change to the less than significant noise impacts of this related project.

Cumulative noise impacts resulting from campus growth under the 2005 LRDP and other reasonably foreseeable regional growth were analyzed in the 2005 LRDP EIR, which found that with implementation of the relevant LRDP PS and PPs, campus development under the 2005 LRDP, as amended, would not expose on-campus residential uses to noise levels exceeding the State standards. Implementation of the 2005 LRDP, as amended, would increase local traffic volumes, and even with implementation of the relevant PPs it would cause a substantial permanent increase in noise along certain affected roadways (Blaine Street east of Iowa Avenue and Canyon Crest Drive) and the impact along these roadway

segments would be significant. Because Alternative 2 would not add traffic to the affected segment of Blaine Street, its contribution to the cumulative noise impacts under the 2005 LRDP, as amended, would be reduced compared to the noise impacts under the proposed projects and would not be cumulatively considerable. Cumulative stationary source noise could cause a permanent increase in ambient noise levels, but the impact would be less than significant with implementation of the relevant LRDP PSs and PPs. Construction on the campus under the 2005 LRDP, as amended, could involve multiple projects simultaneously, resulting in temporary significant and unavoidable cumulative increases in ambient noise levels and exposing persons on campus to excessive groundborne vibration. These cumulative impacts would be significant and unavoidable even with implementation of the relevant PPs and MMs. In addition, construction-related traffic from multiple projects occurring at the same time could result in temporary increases in ambient noise levels, although the cumulative impact would be less than significant with implementation of relevant PPs. The west end of Parking Lot 13, the Alternative 3 site, is located approximately 300 feet from the Lothian Hall residential complex, comparable to the distance from the proposed project site to the nearest sensitive receptors, and the east end of the lot is adjacent to off-campus residences on Big Springs Road and Valencia Hill Drive. It would therefore be expected to cause construction noise levels at these receptors similar to or potentially greater than those of the proposed project. Because construction of Alternative 3 would be concurrent with the same cumulative construction projects as the proposed project, and would also be located near sensitive receptors, its contribution to the cumulative noise impacts under the 2005 LRDP, as amended, would not be reduced compared to the noise impacts under the proposed projects and would be cumulatively considerable.

### **Population and Housing**

Development of Alternative 3 would result in a long-term increase of approximately 8 employees on campus, the same as the proposed projects. The population and housing impacts would remain less than significant.

Cumulative population and housing impacts resulting from campus growth under the 2005 LRDP as amended and regional growth were analyzed in the 2005 LRDP Amendment 2 EIR, which determined that impacts related to population growth, increased demand for housing, displacement of existing residents, and construction of replacement housing would be less than significant. Development under the 2005 LRDP, as amended, would not make a considerable contribution to cumulative impacts with implementation of relevant PSs. Alternative 3 would increase campus population by the same number of persons as the proposed EH&S Expansion project, an increase that would be well within the population increase analyzed for the 2005 LRDP, as amended. Therefore, similar to the proposed projects, this alternative would not make a cumulatively considerable contribution to the less than significant cumulative population and housing impacts.

## Public Services

Development of Alternative 3 would involve development of a new EH&S Expansion facility identical to that of the proposed projects and, like the proposed projects, would cause less than significant impacts related to the provision of fire and police protection services. Similar to the proposed projects, this alternative would not contribute to a need for the provision of new or altered fire or police protection facilities. Under Alternative 3, the operations at the Corporation Yard and existing EH&S facility would be the same as those discussed in the Initial Study (**Appendix 1.0** of this EIR) and there would be no change to the less than significant public services impacts of the related projects.

Cumulative public services impacts resulting from campus growth under the 2005 LRDP, as amended, and regional growth were analyzed in the 2005 LRDP Amendment 2 EIR. The 2005 LRDP Amendment 2 EIR determined that cumulative impacts related to the provision of fire protection, law enforcement, schools, and libraries would be less than significant. Alternative 3 would not increase demand for public services in excess of the demand analyzed in the 2005 LRDP Amendment 2 EIR and, like the proposed projects, would not make a cumulatively considerable contribution to the less than significant cumulative public service impacts.

## Recreation

Alternative 3 would involve development of a new EH&S Expansion facility with a growth in employment and related demand for recreational facilities identical to that of the proposed projects and, like the proposed projects, would cause less than significant impacts related to recreational facilities. Under Alternative 3, the operations at the Corporation Yard and existing EH&S facility would be the same as those discussed in the Initial Study (**Appendix 1.0** of this EIR) and there would be no change to the less than significant recreation impacts of the related projects.

Cumulative impacts on recreational facilities resulting from campus growth under the 2005 LRDP and regional growth were analyzed in the 2005 LRDP EIR and summarized in the Initial Study for the 2005 LRDP Amendment 2 EIR. The analysis determined that impacts related to increased demand for recreational space, construction of recreational facilities, and the conversion of recreational fields to non-recreational uses would be less than significant. Development under the 2005 LRDP, as amended, would not make a considerable contribution to cumulative impacts with implementation of the relevant LRDP PSs. Alternative 3 would not increase demand for recreational facilities compared to the 2005 LRDP projections and, like the proposed projects, would not make a cumulatively considerable contribution to the less than significant cumulative impacts on recreation facilities.

## Transportation and Traffic

Alternative 3 would involve the same number of new operational vehicle trips as the proposed projects, but would result in different traffic circulation patterns due to the location of the Alternative 3 site within the developed area of the East Campus. Little to no project-related traffic would likely be routed through the intersection of Blaine Street and Rustin Avenue, which operates at a deficient LOS during the morning peak hour, and this alternative would therefore avoid or reduce this less than significant impact of the proposed projects. However, some operational traffic from the proposed EH&S Expansion would likely be routed through the intersection of Big Springs Road and Watkins Drive, which currently operates at LOS D during the morning and evening peak hours and is projected to operate at LOS F during both peak hours under 2015 conditions (UCR 2011b). The addition of project-related traffic would slightly increase trips at this intersection compared to those of the proposed projects. However, the additional trips are unlikely to cause delays exceeding significance thresholds due to the small number of peak hour trips (approximately 12 in the AM peak hour and 13 in the PM peak hour) and the likelihood that only a fraction of these trips would pass through this intersection.

Construction traffic would likewise have a different traffic circulation pattern and would not be routed through the intersection of Blaine Street and Rustin Avenue. Alternative 3 would therefore avoid or reduce this less than significant impact of the proposed projects. With the Alternative 3 location, there would be an increased potential for construction vehicles to take an unauthorized route southward along Watkins Drive in the vicinity of Big Springs Road as an alternative route to the I-215/SR-60 freeway. However, mitigation identified in **Section 4.8** would specify a construction traffic route and include a traffic control plan in project construction contracts. This would further reduce this less than significant potential impact, similar to that of the proposed projects.

Under this alternative, Parking Lot 27 would be built at the proposed project site; however, because this proposed project involves only minor redistribution of existing trips, it would have less than significant impacts, similar to the proposed projects.

Under Alternative 3, construction and operations at the Corporation Yard would be the same as those discussed in **Section 4.8** of this EIR and there would be no change to the traffic impacts of this related project. Construction and operational traffic impacts at the existing EH&S facility would be the same as those discussed in **Section 4.8** of this EIR and there would be no change to the less than significant traffic impacts of this related project.

Cumulative transportation and traffic impacts resulting from campus growth under the 2005 LRDP, as amended, and regional growth were analyzed in the 2005 LRDP Amendment 2 EIR, which found that

impacts related to increased traffic volumes and construction-related vehicle trips would be significant and unavoidable, and that development under the 2005 LRDP as amended would make a considerable contribution to cumulative impacts even with implementation of relevant LRDP PSs, PPs, and MMs. Implementation of the 2005 LRDP, as amended, would also exceed established levels of service designated by the Riverside County Congestion Management Program, which would be a significant and unavoidable impact. Other transportation- and traffic-related impacts would be less than significant with implementation of the relevant LRDP PSs and PPs. Implementation of Alternative 3 would make a contribution to cumulative impacts similar to that of the proposed projects and, as with the proposed projects, the contribution would not be cumulatively considerable.

### **Utilities**

Alternative 3 would require provision of utilities similar to that of the proposed projects, and the alternative site is located in an area where extension of utilities could occur from existing infrastructure and within existing roadways or the project site itself. Impacts related to the provision of utilities would be similar to those of the proposed projects and would be less than significant. Under this alternative, the Parking Lot 27 project would be developed on the proposed project site and would have less than significant impacts to utilities similar to those of the proposed projects. Under Alternative 3, the construction and operations at the Corporation Yard and existing EH&S facility would be the same as those discussed in the Initial Study (**Appendix 1.0** of this EIR) and there would be no change to the less than significant utilities impacts of the related projects.

Cumulative impacts on utilities resulting from campus growth under the 2005 LRDP as amended and regional growth were analyzed in the 2005 LRDP Amendment 2 EIR, which found that impacts related to the construction of water treatment facilities and wastewater conveyance systems, additional demand for water and electricity, the generation of solid waste and wastewater, and exceedance of wastewater treatment requirements would be less than significant, and that development under the 2005 LRDP, as amended, would not make a considerable contribution to cumulative impacts. The increase in demand for utilities under Alternative 3 would be the same as for the proposed projects and would not make a considerable contribution to the less than significant cumulative utilities impacts.

### ***Ability to Accomplish Project Objectives***

Alternative 3 would meet the project objectives of providing a long-term, consolidated campus facility for all EH&S functions with space for all EH&S programs; providing a building that will facilitate the critical services EH&S provides to the research, training, and administration community at UCR; constructing a building that is a model of environmental sustainability and in compliance with all State and federal

health and safety standards; and providing a facility proximate to on-campus generators to enable safe transport from generators to the EH&S facility in accordance with State and federal regulations, while ensuring access to off-campus haul routes. It would also facilitate development of the related projects and would thus meet the objective of consolidating and relocating Printing & Reprographic Services and Mail Services into a single location that would better serve campus needs.

Alternative 2 would only partially meet the project objective of locating and designing the proposed and related projects to represent optimal investment of land and capital in the future of the campus and to maximize and efficiently use available developable land on campus, consistent with campus planning principles. Although development of the EH&S Expansion would be allowed under the existing land use designation, this alternative would occupy prime land planned for development of academic land uses under the 2005 LRDP (as amended), which have been planned through the LRDP process to make efficient use of the limited land for development on both the East and West Campuses.

Alternative 3 would meet the project objective of providing a limited amount of nearby parking for EH&S staff, campus trainees, and visiting regulators. However, the Alternative 3 site is located on the existing Parking Lot 13 and would reduce total available parking. Because it would include Parking Lot 27, Alternative 3 also would meet the project objective of relocating parking from central campus locations to the periphery of the academic core and replacing surface parking with structures.

## 6.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

**Table 6.0-1, Summary Comparison of Project Alternatives**, presents a summary comparison of the alternatives with the proposed projects with the purpose of highlighting whether the alternative would result in similar, greater, or lesser environmental impacts than the proposed projects.

The No Project Alternative would avoid the significant environmental impacts of the proposed projects and related projects related to noise because it would not result in new construction. This alternative would therefore be the environmentally superior alternative. However, it would not meet any of the proposed projects' objectives.

If the No Project Alternative is the environmentally superior alternative, *State CEQA Guidelines* Section 15126(d)(2) requires that an EIR identify an environmentally superior alternative from amongst the other alternatives evaluated in the EIR.

Alternative 2 (the MLK/Canyon Crest Site Alternative) would slightly reduce the proposed projects' significant impacts related to noise. However, it would have a significant and unavoidable land use impact that would be greater than that of both the proposed projects and Alternative 3. For this reason,

and because Alternative 3 would meet most of the projects' objectives, it would be the environmentally superior alternative.

**Table 6.0-1  
Summary Comparison of Project Alternatives**

	<b>Proposed Project Impact (Significant Before Mitigation)</b>	<b>No Project Alternative</b>	<b>MLK/Canyon Crest Site Alternative<sup>1</sup></b>	<b>Parking Lot 13 Alternative</b>
4.7-3	Construction of the proposed EH&S Expansion, Parking Lot 27 (proposed projects), and the related projects could result in substantial temporary or periodic increases in ambient noise levels at certain sensitive uses in the project vicinity. This impact would be significant.	Impact Less than Proposed Projects	Impact Less than Proposed Projects	Impact Equal to Proposed Projects
4.7-5	Cumulative development, including the proposed EH&S Expansion and Parking Lot 27 (proposed projects) and the related projects, would cause a significant cumulative impact related to substantial permanent increases in ambient noise levels. The contribution of the proposed projects and related projects to this cumulative impact would be cumulatively considerable.	Impact Less than Proposed Projects	Impact Less than Proposed Projects	Impact Equal to Proposed Projects
4.7-6	Cumulative development, including construction of the EH&S Expansion, Parking Lot 27 (proposed projects), and the related projects, would cause a significant cumulative impact related to temporary or periodic increase in ambient noise levels or groundborne vibration. The contribution of the proposed projects and related projects to this cumulative impact would be cumulatively considerable.	Impact Less than or Equal to Proposed Projects	Impact Less than Proposed Projects	Impact Equal to Proposed Projects

*Note:*

<sup>1</sup> Alternative 2, the MLK/Canyon Crest Site Alternative, would have a significant and unavoidable land use impact that would be greater than that of the proposed projects or Alternative 3.

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