UC DAVIS

CALIFORNIA NATIONAL PRIMATE RESEARCH CENTER RESPIRATORY DISEASES CENTER PROJECT

Focused Tiered Draft Environmental Impact Report

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August 2010

State Clearinghouse No.
2010062091

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1 Environmental Review Process

This Focused Tiered Draft Environmental Impact Report (Draft EIR) has been prepared to provide an analysis of certain potentially significant environmental effects of the University of California Davis (UC Davis), California National Primate Research Center (CNPRC) Respiratory Diseases Center project (proposed project), which is a proposal to construct and operate a new research building at the CNPRC. This Draft EIR is designed to inform university decision-makers, responsible agencies, and the public of the environmental consequences of implementing the proposed project. This Draft EIR has been prepared in accordance with and in fulfillment of the California Environmental Quality Act (CEQA), the State CEQA Guidelines, and the UC guidelines for the implementation of CEQA. The University of California is the lead agency for the proposed project and, as such, has authority over whether to approve or deny the proposed project.

In accordance with CEQA Guidelines Sections 15152 and 15168 and Public Resources Code Section 21094, this environmental analysis is tiered from the EIR (State Clearinghouse No. 2002102092) that was prepared for the UC Davis 2003 Long Range Development Plan (2003 LRDP). The 2003 LRDP is a comprehensive land use plan that will guide physical development on campus to accommodate projected enrollment increases and expanded and new program initiatives through the 2015-16 academic year. The proposed project is an element of the growth that was anticipated in the 2003 LRDP and evaluated in the 2003 LRDP EIR.

The CEQA concept of "tiering" refers to the evaluation of general environmental matters in a broad program level EIR, with subsequent focused environmental documents for individual projects that implement the program. CEQA and the CEQA Guidelines encourage the use of tiered environmental documents to reduce delays and excessive paperwork in the environmental review process. CEQA Guidelines Section 15168(d) provides for simplifying the preparation of environmental documents for individual parts of the program by incorporating by reference analyses and discussions that apply to the program as a whole. Where an EIR has been prepared or certified for a program or plan, the environmental review for a later activity consistent with the program or plan should be limited to potentially significant effects on the environment that were not analyzed as significant in the prior EIR, that are susceptible to substantial reduction or avoidance (CEQA Guidelines Section 15152[d]), or were not adequately addressed in the prior EIR (CEQA Guidelines Section 15152[f]).

1.1 Draft Tiered Initial Study

UC Davis prepared a Notice of Preparation (NOP) and issued a Tiered Initial Study (Tiered IS) on June 30, 2010 (Appendix A) that was tiered from the 2003 LRDP EIR. The Tiered IS evaluated potential environmental effects of the proposed project, identified which issues were adequately addressed in the 2003 LRDP EIR, and identified which issues would require further analysis in the Focused Tiered Draft EIR. Based on the Tiered IS, UC Davis decided to prepare a Focused Tiered Draft EIR to evaluate potential impacts related to Air Quality, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Traffic, and Utilities. Therefore, this Focused Tiered Draft EIR has been prepared to further evaluate the significance of impacts in these topic areas and to develop, if necessary, project specific mitigation measures.
1.2 **Scope and Purpose of the EIR**

The June 30, 2010 Initial Study concluded that the project may have potentially significant effects on the environment that were not previously addressed or adequately addressed in the 2003 LRDP EIR, or may have environmental effects that are less-than-significant but have been selected for further analysis and disclosure. This EIR analyzes the potential impacts of the proposed project on the topics of Air Quality, Greenhouse Gas Emissions, and Hazards and Hazardous Materials. In addition, the topics of Transportation and Utilities were selected for further analysis and disclosure in the EIR to validate the preliminary conclusion that potential impacts in these topic areas would be less-than-significant.

1.3 **Environmental Review and Approval Process**

Under CEQA, the lead agency for a project is the public agency with primary responsibility for carrying out or approving the project and for implementing the requirements of CEQA. CEQA Guidelines Section 15083 authorizes and encourages an early consultation or scoping process to help identify the range of actions, alternatives, mitigation measures, and significant effects to be analyzed and considered in an EIR and to help resolve the concerns of affected regulatory agencies, organizations, and the public. Scoping is designed to explore issues for environmental evaluation, ensuring that important considerations are not overlooked and uncovering concerns that might otherwise go unrecognized. UC Davis prepared a NOP and issued a Tiered IS on June 30, 2010 (Appendix A) (tiered from the 2003 LRDP EIR) to determine the scope of the environmental impact analyses that would be needed to adequately address the project. The NOP was circulated for a 30-day comment period from June 30, 2010 to July 29, 2010. No comments were received from the public or from reviewing agencies.

The lead agency responsible for considering implementation of the project and for preparing this Draft EIR is the University of California. CEQA requires that state and local government agencies consider the environmental effects of projects over which they have discretionary authority before taking action on those projects (Pub. Res. Code Section 21000 et seq.). CEQA also requires that each public agency avoid or mitigate to less-than-significant levels, wherever feasible, the significant environmental effects of projects it approves or implements. After completion of the environmental review process, including required public review periods, the University will decide whether to certify the Final EIR as adequate according to CEQA, and whether to take action on the proposed project.

As described above and in Section 1512l(a) of the CEQA Guidelines, an EIR is an informational document for decision-makers and the general public that analyzes the significant environmental effects of a project, identifies possible ways to minimize significant effects, and describes reasonable alternatives to the project that could reduce or avoid its significant environmental impacts. Public agencies with discretionary authority are required to consider the information in the EIR, along with any other relevant information, in making decisions on the proposed project. Those state and local agencies, other than the lead agency, that are responsible for carrying out or approving a project, or elements of a project, are termed "responsible agencies" under CEQA. These responsible agencies may need to approve portions of, grant permits for, or provide other discretionary approvals for the project. For this project, the only anticipated responsible agency is the Yolo-Solano Air Pollution Control District (YSAPMD).

1.3.1 **Public and Agency Review**

This Draft EIR will be circulated for a 45-day public and agency review period from August 4, 2010 to September 20, 2010. Comments on the Draft EIR must be received by 5:00 p.m. on September 20, 2010, and may be emailed to environreview@ucdavis.edu or sent to:
Comments relating to this Draft EIR may also be presented orally during a public hearing on August 25, 2010, at 7:00 PM at the Buehler Alumni and Visitors Center Building on the UC Davis campus.

1.3.2 Availability of Documents

This Draft EIR, and documents incorporated by reference in this Draft EIR, are available for review during normal operating hours at the UC Davis Office of Administrative and Resource Management at 376 Mrak Hall on the UC Davis campus; at the Reserves in Shields Library on the UC Davis campus; at the Yolo County Public Library, 2801 Second Street, Davis; and online during the public review period at http://sustainability.ucdavis.edu/progress/commitment/environmental_review/index.html. Copies of the 2003 LRDP and the 2003 LRDP EIR are available at the above locations. Reference materials used in the preparation of these documents are also available during normal office hours at the UC Davis Office of Administrative and Resource Management.

1.3.3 Project Approval

Following the public hearing on this Draft EIR and after the close of the public comment period, responses to written and oral comments on the Draft EIR will be prepared and published in a Focused Tiered Final EIR document. The Draft EIR and the Final EIR will be independently reviewed and considered by the University of California in connection with a decision on whether to approve the proposed project. It is anticipated that the proposed certification of the EIR and consideration of the project will occur in October of 2010.

1.2.4 CEQA Findings and Mitigation Monitoring

CEQA requires decision-makers to adopt mitigation measures to substantially lessen significant impacts whenever feasible. Section 15091 of the CEQA Guidelines requires that, when approving a project, the lead agency makes certain findings with respect to the significant effects of the project, whether such effects can be substantially lessened through mitigation or alternatives, whether the mitigation or alternatives are feasible, and responsibility for execution of mitigation. Section 21081.6 of the California Public Resources Code and Sections 15091(d) and 15097 of the CEQA Guidelines require public agencies "to adopt a reporting and monitoring program for changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment." In Chapter 4 of this Draft EIR, a project-specific mitigation measure was identified to eliminate entirely the project’s less-than-significant impact due to greenhouse gas emissions, so that the proposed project would create no net increase in greenhouse gas emissions. If, at the time of project approval, any project-specific mitigation measures are adopted, a Mitigation Monitoring and Reporting Plan (MMRP) will be included in the Final EIR. The University of California will adopt project-specific findings to explain the relationship between the MMRP that was adopted for the 2003 LRDP EIR and the on-going implementation of mitigation measures in the 2003 LRDP EIR MMRP that are applicable to the proposed project.
1.4 RELATIONSHIP TO THE 2003 LRDP AND LRDP EIR

This environmental analysis is tiered from the 2003 LRDP EIR (State Clearinghouse No. 2002102092). The 2003 LRDP is a comprehensive land use plan that will guide physical development on campus to accommodate projected enrollment increases and expanded and new program initiatives through the 2015-16 academic year. The proposed project is an element of the growth that was anticipated in the 2003 LRDP and evaluated in the 2003 LRDP EIR.

The 2003 LRDP noted that the campus would expand research facilities and projected an increase of 2.5 million assignable square feet (ASF) of new building space on the campus, with some of that growth occurring at the CNPRC. The 2003 LRDP identified a land use objective of establishing an expanded zone at the CNPRC to accommodate future growth (UC Davis 2003 LRDP, page 60). The 2003 LRDP EIR evaluated the environmental effects that could result from the projected growth in campus programs, building space and population, including the effects of growth at the CNPRC.

Tiering of the environmental analysis for the proposed project pursuant to the CEQA Guidelines allows this Focused Tiered Draft EIR to rely on the 2003 LRDP EIR 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 2003 LRDP EIR for which there is no significant new information or change in circumstances that would require further analysis; and
- Assessment of cumulative impacts.

In addition, mitigation measures that were previously adopted for the 2003 LRDP EIR, and are related to and designed to reduce the impacts of this project, are identified in this Draft EIR. Because these mitigation measures are already being carried out as part of implementation of the 2003 LRDP, they are included in and are part of the proposed project and will not be readopted. Nothing in this Draft EIR in any way alters the obligations of the campus to implement the LRDP mitigation measures. Please see Section 1.2.2 regarding the availability of the 2003 LRDP EIR and other documents incorporated by reference.

1.5 ORGANIZATION OF THE EIR

The content and format of this Draft EIR are designed to meet the requirements of CEQA and the CEQA Guidelines (Sections 15122 through 15132). The Draft EIR is organized into the following chapters so that the reader can easily obtain information about the proposed project and the specific environmental issues:

- **Chapter 1, Environmental Review Process**, explains the CEQA process and the purpose of this Draft EIR; lists the lead and responsible agencies with discretionary authority over the proposed project; provides information on the public and agency review and approval process; describes the relationship of the proposed project and the 2003 LRDP EIR; and outlines the organization of this Draft EIR.

- **Chapter 2, Project Summary**, presents an overview of the proposed project; a summary of the alternatives being considered; a discussion of known areas of controversy; and a listing of the impacts of the proposed project and mitigation measures in a table format, including the significance of impacts before and after mitigation.
• **Chapter 3, Project Description**, provides background on the proposed project; identifies the project objectives; lists the likely regulatory requirements of the project; and describes the facility- and construction-related improvements that comprise the proposed project.

• **Chapter 4, Environmental Setting, Impacts, and Mitigation Measures**, explains the approach to the environmental analysis for this EIR and includes a description of the baseline, or existing conditions, and the regulatory setting. Following the setting information, this section provides an analysis of impacts that would result from implementation of the proposed project.

• **Chapter 5, Other CEQA-Required Sections**, identifies the growth-inducing impacts, the significant and unavoidable impacts of implementing the proposed project, and the significant and irreversible commitment of resources.

• **Chapter 6, Alternatives**, analyzes the environmental impacts of three alternatives to the proposed project and compares them to the proposed project. The chapter also serves to describe the alternatives to the proposed project that were considered but eliminated from further consideration. The environmentally superior alternative is also identified in this chapter.

• **Chapter 7, References and Acronyms/Abbreviations**, provides information about the published documents and other unpublished information (personal communications) cited in this Draft EIR and provides a list of acronyms/abbreviations that are used in the Draft EIR.

• **Chapter 8, Agencies and Persons Consulted**, lists the people and agencies consulted in preparation of this Draft EIR.

• **Chapter 9, Report Preparers**, lists the individuals who were involved in preparing this Draft EIR and the individuals who provided information.

• **Appendix A** contains the Tiered IS and NOP, **Appendix B** contains the calculations used in the air quality analysis, and **Appendix C** contains the calculations used in the greenhouse gas emissions analysis. This information is used to support the analysis and conclusions presented in the Draft EIR.
2 PROJECT SUMMARY

2.1 INTRODUCTION

This Focused Tiered Draft EIR evaluates the potential environmental impacts of UC Davis CNPRC Respiratory Diseases Center project, which is a proposal to increase the laboratory research space at the UC Davis CNPRC. This overview highlights the major areas of importance in the environmental analysis for the proposed project, as required by Section 15123 of the CEQA Guidelines. It also provides a brief description of the project, project objectives, community/agency issues, alternatives to the project, and areas of controversy known to the University. In addition, this chapter provides a table summarizing: (1) the potential environmental impacts that would occur as the result of implementation of the project; (2) the level of impact significance before mitigation; (3) the recommended mitigation measures that would avoid or reduce significant environmental impacts; and (4) the level of impact significance after mitigation measures are implemented.

2.2 PROJECT DESCRIPTION AND OBJECTIVES

UC Davis proposes to construct and operate a new primate respiratory disease research laboratory within the existing UC Davis CNPRC. The CNPRC is located on County Road 98 south of Russell Boulevard near the city of Davis, in the west campus area of UC Davis (Figure 2). The proposed Respiratory Diseases Center project (the proposed project) would be a freestanding one-story building with approximately 20,000 gross square feet (11,700 assignable square feet) that would include laboratory and laboratory support space, offices, animal holding and research rooms, and mechanical and support areas. The building would be used to conduct research addressing lung function and diseases of the respiratory system.

The proposed project site is within the developed area of the existing CNPRC facility, north of existing CNPRC buildings on land that is currently used for materials storage (Figure 3). Primate colony cages are located to the north of the site across Primate Drive, which is an internal roadway within the CNPRC. CNPRC buildings containing laboratories, animal buildings, offices, and storage are located to the east, south, and west. The project site is designated for Academic/Administrative High Density uses in the 2003 LRDP.

The objectives of the proposed project are to:

- Address significant facility deficiencies at the CNPRC for both laboratory space and animal holding space for pulmonary research;
- Provide expanded laboratory and office space at the CNPRC to co-locate UC Davis and off-site respiratory disease researchers in one secure location to facilitate increased collaboration;
- To create additional laboratory space for the recruitment of new scientists at the CNPRC;
- Provide a facility with a clean filtered air room and a room with metabolism cages for animal holding;
- Provide additional space and capabilities necessary to accommodate the growing CNPRC pulmonary function laboratory; and
- Construct the new building with features that will allow it to achieve a high level of energy efficiency.

2.3 IMPACT SUMMARY

Table 2-1 provides a complete list of the conclusions from the analyses of all potential project impacts, which are related to air quality, greenhouse gas emissions, hazards and hazardous materials,
transportation, and utilities, on which this EIR is focused. As Table 2-1 shows, these potential impacts have been found to be less than significant, and no mitigation is required. While impact GHG-1 was found to be less-than-significant, the university has identified a mitigation measure to entirely eliminate the less-than-significant contribution of the proposed project to greenhouse gas emissions. This mitigation measure is shown below in Table 2-1.

<table>
<thead>
<tr>
<th>Impact</th>
<th>Level of Significance Before Mitigation</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR-1</td>
<td>LS</td>
<td>No mitigation is needed</td>
<td>LS</td>
</tr>
<tr>
<td>AIR-2</td>
<td>LS</td>
<td>No mitigation is needed</td>
<td>LS</td>
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<tr>
<td>AIR-3</td>
<td>LS</td>
<td>No mitigation is needed</td>
<td>LS</td>
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<td>AIR-4</td>
<td>LS</td>
<td>No mitigation is needed</td>
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<td>AIR-5</td>
<td>LS</td>
<td>No mitigation is needed</td>
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<tr>
<td>AIR-6</td>
<td>LS</td>
<td>No mitigation is needed</td>
<td>LS</td>
</tr>
<tr>
<td>GHG-1</td>
<td>LS</td>
<td>No mitigation is needed, see Table 2-2</td>
<td>No Impact</td>
</tr>
<tr>
<td>GHG-2</td>
<td>LS</td>
<td>No mitigation is needed, see Table 2-2</td>
<td>No Impact</td>
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<td>HAZ-1</td>
<td>LS</td>
<td>No mitigation is needed</td>
<td>LS</td>
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<tr>
<td>Haz-2</td>
<td>LS</td>
<td>No mitigation is needed</td>
<td>LS</td>
</tr>
<tr>
<td>HAZ-3</td>
<td>LS</td>
<td>No mitigation</td>
<td>LS</td>
</tr>
</tbody>
</table>
The proposed project would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

The proposed project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the on-campus circulation system.

The proposed project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the off-campus circulation system.

The proposed project would not 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.

Implementation of the proposed project would not conflict with alternative transportation planning efforts.

Implementation of the proposed project would require the construction of improved wastewater treatment (upgrade of a lift station) to serve the project but the construction would be minor and would not result in significant impacts.

<table>
<thead>
<tr>
<th>Impact</th>
<th>Level of Significance Before Mitigation</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHG-1</td>
<td>LS</td>
<td>Project-Specific Mitigation Measure GHG-1: Under the Strategic Energy Partnership Program, the Campus will fund energy-efficiency improvements in existing buildings on the campus that will achieve a minimum GHG emissions reduction of 755 MTCO2e per year, within two years of the occupancy of RDC.</td>
<td>No Impact</td>
</tr>
<tr>
<td>GHG-2</td>
<td>LS</td>
<td>See Mitigation Measure GHG-1.</td>
<td>No Impact</td>
</tr>
</tbody>
</table>

Note: LS denotes less-than-significant.

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1 Strategic Energy Partnership Program or SEPP is a program that the UC and investor-owned utilities have entered into whereby the utilities provide a certain amount of matching funds for energy efficiency and energy conservation initiatives that eligible UC campuses undertake. Actual savings in kWh and therms must be demonstrated to receive the matching funds. The Davis campus participates in the SEPP,
2.4 **Alternatives to the Proposed Project**

The following alternatives are analyzed in detail in Chapter 6 of this Focused Tiered Draft EIR in comparison to the proposed project. The purpose of the alternatives analysis is to determine whether an alternative would feasibly attain some or most of the project objectives, while avoiding or substantially lessening some of the significant effects of the proposed project. A two-step process was used to conduct the alternatives analysis in this Draft EIR. First, potential alternatives were examined for their feasibility and ability to meet most of the project objectives. Those that clearly were found to be infeasible were rejected without further environmental review. Alternatives that may be feasible and that would attain most of the project objectives were carried forward and analyzed with regard to whether they would reduce or avoid significant impacts of the project. The two alternatives considered but rejected were: (1) to use computer based research as an alternative to the proposed project and, (2) to undertake the construction at a non-UC Davis location. These rejected alternatives are discussed in Section 6.2 of this EIR. The alternatives carried forward for analysis are discussed in Section 6.3 and are summarized below:

- **No Project-No Build:** The project would not be constructed. Where feasible, existing laboratories would be used to conduct new or expanded research projects. The campus would make no modifications to the existing facilities.

- **Construction at Alternative UC Davis Locations:** This alternative would construct the same Respiratory Diseases Center facility as the proposed project. Rather than constructing this facility at the CNPRC, the buildings would be located elsewhere at UC Davis and could be placed within the Central Campus, South Campus, or West Campus areas. For this alternative, it is assumed that within the Central Campus, South Campus, or West Campus at UC Davis, adequate building sites could be located that would not need utility upgrades in order to adequately serve the proposed buildings.

- **Construction of Reduced Facilities:** This alternative would involve construction of a smaller building to house new, expanded and on-going research. The key elements of this alternative would be to construct a smaller building of only 12,000 gsf instead of the proposed 20,000 gsf. This alternative would have similar environmental effects to the proposed project but at a lower intensity because of the reduced construction impacts, a smaller increase in employee population, and a reduction in operational impacts. The overall reduction in operational impacts would extend to the air quality, greenhouse gas emissions and hazards materials impacts evaluated in this EIR. Overall, the Construction of Reduced Facilities alternative reduces the less than significant environmental effects of the project. The alternative would require the same hazardous materials protocols as the proposed project and would not create any new environmental effects.

2.5 **Known Areas of Controversy**

Section 15123 of the CEQA Guidelines requires that a summary of an EIR identify areas of controversy known to the Lead Agency, including issues raised by agencies and the public. During the public comment period, no letters were received regarding the proposed project. Research at the CNPRC is known to be controversial because of primate research conducted at the facility and new construction at CNPRC typically engenders controversy due to the potential to accommodate an increase in the amount of non-human primate research at the CNPRC. Prior projects have been controversial because of this research and animal rights groups have previously expressed concern over the on-going research at the CNPRC. The potential for controversy is one of the reasons that this Focused Tiered EIR has been prepared.
3 PROJECT DESCRIPTION

3.1 REGIONAL LOCATION

The approximately 5,300-acre UC Davis campus is located in Yolo and Solano Counties approximately 72 miles northeast of San Francisco, 15 miles west of the City of Sacramento, and adjacent to the City of Davis (see Figure 3.1). The campus is composed of four campus units: the central campus, the south campus, the west campus, and Russell Ranch. Most academic and extracurricular activities occur within the central campus. The central campus is bounded generally by Russell Boulevard to the north, State Route 113 (SR 113) to the west, Interstate 80 (I-80) and the Union Pacific Railroad tracks to the south, and A Street to the east. The south campus is located south of I-80 and north of the South Fork of Putah Creek. The west campus is bounded by SR 113 to the east, Putah Creek to the south, Russell Boulevard to the north, and extends approximately one-half mile west of County Road 98. The south and west campus units are contiguous with the central campus, and are used primarily for field teaching and research. The approximately 1,600 acre Russell Ranch portion of the campus lies to the west, separated from the west campus by approximately one and one-half miles of privately owned agricultural land. Russell Ranch was purchased in 1990 for campus uses including large-scale agricultural and environmental research, study of sustainable agricultural practices, and habitat mitigation. Russell Ranch is bordered roughly by County Road 96 on the east, Putah Creek on the south, Covell Boulevard on the north, and Russell Boulevard and privately owned agricultural land on the west and northwest.

3.2 PROJECT SITE

The CNPRC is located in the west campus area of UC Davis. The proposed project site is an area of approximately 40,000 square feet of land designated for Academic and Administrative uses and is located within the developed area of the existing CNPRC facility, north of existing CNPRC buildings, on land that is currently used for materials storage. Primate colony cages are located to the north of the site across Primate Drive, which is an internal roadway within the CNPRC. CNPRC buildings include those containing laboratories, animal buildings, offices, and storage are located to the east, south, and west. The project site is designated for Academic/Administrative High Density uses under the 2003 LRDP.

3.3 PROJECT NEED

The CNPRC is one of eight National Primate Research Centers (NPRCs) funded by the National Institutes of Health, National Center for Research Resources (NIH/NCRR). The objective of the NIH/NCRR program is to provide regional and national resources for data, consultative expertise, biologic and genetic material, and specialized facilities and equipment that are useful in support of primate related research. Of the eight NPRCs, the CNPRC has the largest concentration of scientists with expertise that is focused on the respiratory system. Respiratory disease staff scientists intensively utilize, support, and enhance the capabilities of the respiratory disease research program which is also a unique resource of the CNPRC; there is no comparable facility for nonhuman primates in the United States.

The existing Respiratory Diseases Unit (RDU) of the CNPRC is focused on defining the cellular, molecular, and metabolic mechanisms for chronic diseases of the respiratory system, such as asthma. An important goal of the unit is to develop new therapeutic targets for chronic lung disease. The major thematic areas of research for the RDU include studying: normal airway development; age-related impact of environmental exposure on the lung; age-related immune development on the lung; and development of therapies for treatment of chronic lung disease.
Figure 2
Project Location
UC Davis
Central Campus

CNPRC Respiratory Diseases Center
Figure 3
Project Site and Vicinity
CNPRC Respiratory Diseases Center
The proposed project will increase research space available to the existing RDU at the CNPRC, allowing the program to accommodate the needs of off-site investigators from other research institutions. This facility is proposed to serve as a national resource and will provide research support to 12 CNPRC investigators, 14 other UC Davis investigators, and 42 investigators representing 28 other institutions.

The project will provide both on-site investigators from within the CNPRC and off-site investigators from other research institutions with the resources necessary to expand these important thematic areas of research. For example, the expansion of pulmonary testing in the new facility will allow multiple studies to be done in parallel whereas currently only one study can be done at a time. The concentration of RDU staff scientists will allow sharing of techniques, sharing of technical support staff and rapid exchange of ideas on a daily basis. The inclusion of off-site investigators in this robust environment will be an incubator for state-of-the-art respiratory research and collaboration.

The project will also permit relocation and consolidation of programs within the RDU that focus on childhood health and disease, with an emphasis on respiratory diseases, and provide a state-of-the-art facility with a complete pulmonary function laboratory. This consolidation and expansion will bring together scientists in the RDU and enhance and expand collaborative efforts among members of this unit, who currently occupy office and lab space throughout the UC Davis campus. The space will also provide the resources necessary to accommodate the projected needs of off-site investigators who have expressed interest in conducting research at this facility.

3.4 PROJECT ELEMENTS

3.4.1 Building

The proposed project involves new construction of a one-story building immediately north of the existing animal research building at the CNPRC with an overall size of approximately 20,000 GSF. The building will include approximately 1,275 assignable square feet (ASF) of office/office support space and approximately 10,500 ASF of laboratory/laboratory support space. The building would be designed to allow service access primarily along the north side of the building and would include a driveway to connect with the existing access road on the west side of the site.

The building will include two distinct indoor areas. The first area would consist of wet laboratories and support areas as well as office and conference space, restrooms, and storage space. The laboratories would include fume hood rooms and tissue culture areas. The second building area would consist of animal holding and testing laboratories for inhalation exposure and pulmonary testing. The two building areas would be separated by a clean utility hallway that would allow access to the laboratory tissue culture room and autoclave for the animal researchers and secondary egress from the laboratories. Operations at the building would include inhalation exposure testing, pulmonary function testing, animal holding, tissue culture and other “wet” lab uses, office and meeting use, and laboratory and building mechanical rooms and janitorial space.

To meet the anticipated research requirements, the proposed project would be constructed and furnished to conform with the features and protocols defined in the Centers for Disease Control and Prevention (CDC) publication Biosafety in Biomedical and Biological Laboratories (BMBL). This publication defines four biosafety levels that apply to biohazardous materials operations, depending on the risk posed by the organism involved in the research. The four biosafety levels are designated as BSL 1 through 4 with BLS 1 requiring the least level of necessary precaution and BSL 4 requiring the most amount of precaution.
The laboratory and animal holding areas would be designed to meet BSL-2 and BSL-2 enhanced protocols. The RDU conducts research using non-human primates and consequently, the RDC building would include BSL-2 and BSL-2 enhanced design features because organisms that are endemic to non-human primates necessitate safety precautions to prevent unintended exposure to research staff. In addition, the RDU research program would include research to test respiratory functions of animals infected with specific diseases. The diseases that would be used in the research program include haemophilus influenza, rhinovirus, respiratory syncytial virus, and heliobacter virus. The use of these organisms as part of the research program would require both the design features of the BSL-2 and BSL-2 enhanced facility and adoption of additional laboratory precautionary measures such as protective gowns and increased signage.

The BSL-2 designation is appropriate for use with biohazardous materials that are considered to be of ordinary (not special) potential hazard and may produce varying degrees of disease through accidental autoinoculation, ingestion, and skin or mucous membrane exposure. Examples of design details for a BSL 2 facility include the following:

- Lockable doors must be provided for facilities that house infectious agents.
- Planning for new laboratories should consider locating them away from public areas.
- Each laboratory must contain a sink for handwashing.
- Each laboratory must be designed so that it can be easily cleaned and chairs and other furniture used in laboratory should be covered with a non-fabric material that can be easily decontaminated.
- Laboratory furniture must be capable of supporting anticipated loading and uses. Spaces between benches, cabinets, and equipment must be accessible for cleaning.
- Biological safety cabinets should be installed in a manner such that fluctuations of the room supply and exhaust air do not cause the biological safety cabinets to operate outside their parameters for containment. Biological safety cabinets should be located away from doors, from windows that can be opened, from heavily traveled laboratory areas, and from other potentially disruptive equipment so as to maintain the air flow parameters for containment.
- An eyewash station must be readily available.
- Illumination must be adequate for all activities, and must avoid reflections and glare that could impede vision.

With occupancy of the proposed RDC building, the CNRPC would move current staff into the new facility. The CNPRC’s current strategic plan includes an emphasis on advancing translational research through the development of nonhuman primate models of disease. The project would enable the RDU to vacate its existing space in the main building at the CNPRC, which would then be used to recruit new scientists to enhance translational research in the Infectious Diseases Research Unit, the Reproductive Sciences and Regenerative Medicine Research Unit, and the Respiratory Diseases Research Unit at the CNPRC. No facility modifications or changes of use would be needed to implement the recruitment of new scientists and backfill existing space for those scientists.

3.4.2 Landscaping

The areas immediately adjacent to the building would be landscaped with groundcover, shrubs, and trees. Sidewalks would be provided around the building perimeter.
3.4.3 Parking and Roadways

Service access to the building would be from existing internal roadways to the north, west, and south that serve adjacent buildings. A driveway from the northern roadway would provide vehicle access to the animal holding area. Parking would be provided in existing lots located south and west of the project site. No additional parking would be provided at the project site. Parking for employees would take place within existing parking facilities at the CNPRC.

3.4.4 Utilities and Infrastructure

As discussed briefly below and analyzed in Section 4.7, the proposed project would be connected to campus utilities and infrastructure including electricity, domestic and fire suppression water, sanitary sewer, storm drains, telecommunications, and natural gas, with an optional connection to the steam distribution system. There would be no utility water or chilled water systems; domestic water would be used for the project’s minimal landscaping needs. As described below, all utility connections will be located immediately adjacent to the proposed building and within the footprint of the project site.

Electricity: The proposed project would be connected to the existing power grid at CNPRC. Relocation of an existing transformer and installation of distribution infrastructure would be needed to accommodate placement of the proposed building footprint. The building demand is expected to be 260 KvA at campus peak usage. A diesel-powered emergency generator would provide backup power for the project.

Domestic Water: The building would be connected to a domestic water main on the northeast side of the site.

Sanitary Sewer: The building would be served by the existing sanitary sewer system. Relocation of an existing 8-inch line (within the proposed building construction area) and upgrading and existing sewer lift station SSLS-10 would be necessary to accommodate the new building load. The building’s projected sewer demand is 3,475 gallons per day.

Storm Drainage: Existing storm drainage is primarily by sheet flow into inlets to the existing storm drain system. Drainage from the western portion of the project site flows in a westerly direction to an existing storm drain inlet at the northwest corner of the project site, while drainage from the eastern portion of the site appears to flow to the east. Standing water and minor flooding have been observed on the site in the past.

The proposed project would develop on-site swales and a piping network to direct the eastern part of the project site stormwater runoff to an existing retention basin located east of the site within the CNPRC facility. The retention facility was designed both to provide flood protection for the existing structures and facilities in the area and as part of a larger plan to provide 100-year flood protection for existing facilities and future growth in the area, including the proposed project. Part of the stormwater run-off from the northwest side of the site would be directed through on-site swales and piping to the existing northwest storm drain system that flows to a detention basin north of the CNPRC facility at the intersection of Russell Boulevard and County Road 98. The detention facility was designed to accommodate stormwater flows from the project area, and has sufficient capacity to accept anticipated additional stormwater volumes from the proposed development.

Natural Gas: The existing natural gas system was recently upgraded with a new 4-inch line on the northeast side of the proposed project site. The new building would be connected to this line. The connection would be designed to meet a projected demand of approximately 1,457 cubic feet per hour.

Steam: Steam would be supplied by an on-site gas-fired boiler. Alternatively, the building may be connected to the CNPRC steam distribution system. The proposed point of connection would be at the
existing steam header in the CNPRC central plant located on the southeast side of the proposed project site. Under either option, the system would be designed to supply the projected demand of 1,355 pounds per hour.

Telecommunications: Telecommunications (voice and data lines) would be connected to the existing system at the existing pullbox located on the northeast side of the proposed site.

3.4.5 Sustainable Design Elements

The proposed project would comply with the UC Policy on Sustainable Practices and would meet the campus baseline\(^2\) as applicable to the project. The building is intended to meet the criteria for LEED Silver or better. Windows will be designed to allow natural lighting, and the building will be constructed with high efficiency mechanical equipment and lighting controls.

3.4.6 Population

As stated above, the proposed project would serve as a national resource, and would provide research support to 12 existing CNPRC investigators, 14 other UC Davis investigators, and 42 investigators representing 28 other institutions. Approximately 35 people would work in the building on a typical day. Because many of these workers would be relocating from other places at the CNPRC to this facility, and the 42 investigators from other institutions would not be on site at the same time, the project would add approximately 25 net new persons to the CNPRC population.

3.5 Construction Schedule and Staging

Construction of the proposed project is anticipated to begin in 2011 and end in 2012, and would take approximately 12 months. Construction staging and contractor parking associated with the proposed project would occur on a gravel area immediately to the west of the project site.

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\(^2\) UC Davis has established a campus baseline, which is the minimum number of applicable Leadership in Energy and Environmental Design (LEED) rating system “points” that each project on the campus will achieve. With the passage of the Regental Policy on Green Building Design and Clean Energy Standards, each campus in the UC System was required to devise a campus baseline. While the UC System does not require each system campus to apply for United States Green Building Council LEED certification, the UC has committed to achieving a level of building performance comparable to that of LEED certification. The campus baseline provides the starting level of building performance objectives for all campus projects, with the exception of medical facilities.
4 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

4.1 INTRODUCTION

This section of the Focused Tiered Draft EIR presents potential environmental impacts of the proposed UC Davis CNPRC Respiratory Diseases Center project. The scope of the analysis and key attributes of the analytical approach are presented below to assist readers in understanding the manner in which the impact analysis has been conducted in this Focused Tiered Draft EIR.

The preparation of this Focused Tiered Draft EIR was preceded by the Tiered Initial Study for the CNPRC Respiratory Diseases Center project (included in Appendix A) which determined that an EIR would be prepared to consider potential project impacts to Air Quality, Greenhouse Gas Emissions, and Hazards and Hazardous Materials, Transportation, and Utilities.

This chapter examines potential impacts related to these environmental topics, presenting the environmental setting, regulatory setting, standards of significance, methodology of the analysis, impacts of the proposed project on the environment, and proposed measures to mitigate significant impacts. The environmental setting subsections provide an overview of the existing physical environmental conditions at the time the NOP was issued. Much of this information is incorporated by reference from the 2003 LRDP EIR, from which this EIR is tiered. The environmental setting is the environmental baseline to which the proposed project is compared to determine its impacts. The regulatory setting subsections identify the environmental laws and regulations that are relevant to each topical section. Standards of significance are identified for each environmental topic. These standards are the thresholds used to determine whether implementing the project would result in a significant environmental impact.

Impacts are presented for each environmental topic identified above, and a significance determination is provided at the end of each discussion. A significant impact is defined under CEQA as a substantial adverse change to the physical environment. For each impact identified in the analysis, significance is expressed as either no impact or less than significant. The analysis in this EIR determined that no project-specific significant impacts would result and that no project-specific mitigation measures were required.

4.2 SCOPE OF THE EIR

4.2.1 DEFINITION OF BASELINE

The environmental setting consists of the physical environmental conditions at the time the NOP for this Focused Tiered Draft EIR was released, in June 2010.

4.2.2 DEFINITION OF STUDY AREA

For Air Quality, the environmental setting area evaluated (the study area) consists of both the local project area around the project site and the Sacramento Valley Air Basin which is the combined air quality planning area for the Sacramento area.

For Greenhouse Gas Emissions, the study area consists of the emission sources from the proposed project that could contribute to global climate change due to greenhouse gas emissions.

For Hazards and Hazardous Materials, the study area consists of the proposed building, in which hazardous materials will be used, and roads throughout the UC Davis campus that are used to transport hazardous materials.
For Transportation and Circulation, the study area is the nearby roadway system that could be affected by the proposed project.

For Utilities and Service Systems, the study area is the campus utility system that would serve the proposed project.

### 4.2.3 BASIS OF IMPACT ANALYSIS

The analysis of impacts in this Draft EIR is based on the location and magnitude of effect that is projected to occur as a result of the implementation of the project. Impacts are evaluated in terms of changes to existing conditions that would be caused by the proposed project. For air quality, greenhouse gas emissions, hazards and hazardous materials, transportation and circulation, and utilities and service systems, the conditions that would result from implementation and operation of the project at full capacity are compared to baseline conditions to characterize the change.

### 4.2.4 CUMULATIVE IMPACTS

The CEQA Guidelines, Section 15130, require that an EIR discuss cumulative impacts of a project when the project’s incremental effect is “cumulatively considerable.” According to Section 15065, “cumulatively considerable” means the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and effects of probable future projects as defined in Section 15130. Pursuant to Section 15130 of the CEQA Guidelines, “(t)he discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impacts to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.”

Mitigation measures are to be developed to reduce the project’s contribution to significant cumulative effects whenever feasible. The CEQA Guidelines acknowledge that sometimes the only feasible method for mitigating or avoiding significant cumulative effects is to adopt ordinances or regulations that apply to all projects that contribute to the cumulative effect. Further, there must be a fair and reasonable relationship between the project’s contribution to a significant effect and its level of mitigation. Also, Section 15130(a)(3) of the CEQA Guidelines states that an EIR may determine that a project’s contribution to a significant cumulative impact will be rendered less than cumulatively considerable, and thus not significant, if a project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

The 2003 LRDP EIR evaluated the cumulative environmental impacts of campus programs and initiatives, development of new facilities, and population growth that would occur through the 2015–2016 academic year under the guidance of the 2003 LRDP, together with the impacts from other regional development. The proposed project is part of the overall campus expansion evaluated in the 2003 LRDP EIR. The potential contribution of the proposed project to cumulative impacts for air quality, greenhouse gas emissions, hazards and hazardous materials, transportation and circulation, and utilities and service systems is addressed in each of the specific impact analysis sections in Sections 4.3 (Air Quality), 4.4 (Greenhouse Gas Emissions), 4.5 (Hazards and Hazardous Materials), 4.6 (Transportation, Circulation, and Parking), and 4.7 (Utilities and Service Systems).
4.3 AIR QUALITY

This section of the Focused Tiered Draft EIR presents potential air quality impacts of the proposed RDC. The preparation of this Focused Tiered Draft EIR was preceded by the Tiered Initial Study for the RDC project which determined that an EIR would be prepared to consider the potential for the proposed project to result in significant impacts on air quality.

This section presents the environmental setting, regulatory setting, standards of significance, methodology of the analysis, impacts of the proposed project on the environment, and proposed measures to mitigate the significant impacts. The environmental setting subsections provide an overview of the existing physical environmental conditions. Information is incorporated by reference from the 2003 LRDP EIR, from which this EIR is tiered. The environmental setting is the environmental baseline to which the proposed project is compared to determine its impacts. The regulatory setting subsections identify the environmental laws and regulations that are relevant to air quality. Standards of significance are identified and used to determine whether implementing the project would result in a significant environmental impact. A significant impact is defined under CEQA as a substantial adverse change to the environment. The analysis in this Draft EIR determined that the proposed project would result in less than significant air quality impacts and that project-specific mitigation measures would not be required. Copies of the modeling runs to estimate air pollutant emissions associated with the proposed project and supporting technical data are found in Appendix B of this EIR.

The following sources were used to prepare this section of the Draft EIR:
- UC Davis 2003 Long Range Development Plan (2003 LRDP) and 2003 LRDP EIR
- YSAQMD’s Handbook for Assessing and Mitigating Air Quality Impacts

4.3.1 Environmental Setting

Section 4.3 of the 2003 LRDP EIR addresses the existing environmental setting for air quality assessments for campus through the 2015-16 academic year (UCD LRDP 2003). The following discussion summarizes information presented in the ‘Environmental Setting’ subsection of Section 4.3 of the 2003 LRDP EIR, updated with current data as necessary.

CLIMATE AND TOPOGRAPHY

The California Air Resources Board (CARB) has divided California into regional air basins according to topographic features. The proposed project is located in the Yolo County portion of the Sacramento Valley Air Basin (SVAB). The SVAB includes Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba counties, the western urbanized portion of Placer County, and the eastern portion of Solano County. The portion of the SVAB in which the proposed project is located is under the jurisdiction of the Yolo-Solano Air Quality Management District (YSAQMD) for issues related to air quality planning.

The SVAB occupies 15,040 square miles and has a population of more than 2 million people. The SVAB is bounded by the North Coast Ranges on the west and Northern Sierra Nevada Mountains on the east. The intervening terrain is flat and is often described as a bowl shaped valley. Because of its inland location, the climate of the SVAB is more extreme than the climate in the San Francisco Bay Area Air Basin or South Coast Air Basin. The Sacramento Valley has a Mediterranean climate, characterized by hot dry summers and mild rainy winters. During the year the temperature may range from 20 to 115 degrees Fahrenheit with summer highs usually in the 90s and winter lows occasionally below freezing. Average annual rainfall is about 20 inches with snowfall being very rare. The prevailing winds are moderate in strength and vary from moist breezes from the south to dry land flows from the north. The mountains surrounding the Sacramento Valley create a barrier to airflow, which can trap air pollutants in the valley when meteorological conditions are right and a temperature inversion exists. The
highest frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells lie over the valley. The lack of surface wind during these periods and the reduced vertical flow caused by less surface heating reduces the influx of outside air and allows air pollutants to become concentrated in the air. The surface concentrations of pollutants are highest when these conditions are combined with smoke from agricultural burning or when temperature inversions trap cool air, fog, and pollutants near the ground. The ozone season (May through October) in the Sacramento Valley is characterized by stagnant morning air or light winds with the Delta sea breeze arriving in the afternoon out of the southwest.

**AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS**
Both the federal government and the State of California have established ambient air quality standards for several different pollutants. The United States Environmental Protection Agency (U.S. EPA) sets National Ambient Air Quality Standards (NAAQS) for the following seven “criteria” pollutants: carbon monoxide (CO), nitrogen dioxide (NO2), ozone (O3), sulfur dioxide (SO2), respirable particulate matter (PM10), fine particulate matter (PM2.5), and lead. California Ambient Air Quality Standards (CAAQS) have been adopted for these pollutants, as well as for sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. California standards are generally stricter than national standards. While reactive organic gases (ROGs) are not considered to be criteria air pollutants, they are widely emitted from land development projects and undergo photochemical reactions in the atmosphere to form O3; therefore, ROGs are relevant to this project and are of concern in the area (U.S. EPA 2010).

The ambient air quality standards identify the level of air quality considered safe to protect the public health and welfare, especially for those most susceptible to respiratory distress such as asthmatics, the very young, the elderly, people weak from other illness or diseases, or persons who engage in heavy work or exercise. Healthy adults can tolerate periodic exposure to air pollution levels somewhat above these standards before adverse health effects are observed. Emissions limitations are typically imposed upon individual sources of air pollutants by local agencies or upon certain large or unique facilities by the U.S. EPA. Mobile sources of air pollutants such as automobiles, aircraft, and trains are controlled primarily through state and federal agencies.

A summary of state and federal ambient air quality standards and the effects of the exceedance of these standards on health are shown in Table 4.1-1, Ambient Air Quality Standards and Health Effects. For some pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values, such as protection of crops, protection of materials, or avoidance of nuisance conditions.
### Table 4.1-1
Ambient Air Quality Standards and Health Effects

<table>
<thead>
<tr>
<th>Air Pollutant</th>
<th>Concentration/Averaging Time</th>
<th>Federal Primary Standard</th>
<th>Most Relevant Health Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ozone</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
<td>0.09 ppm, 1-hr. avg. 0.070 ppm, 8-hr avg. (three-year average of annual 4th-highest daily maximum)</td>
<td>0.075 ppm, 8-hr avg.</td>
<td>(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</td>
</tr>
<tr>
<td><strong>Nitrogen Dioxide</strong>&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0.18 ppm, 1-hr avg. 0.030 ppm, annual arithmetic mean</td>
<td>0.100 ppm, 1-hr avg. 0.053 ppm, annual arithmetic mean</td>
<td>(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</td>
</tr>
<tr>
<td><strong>Respirable Particulate Matter</strong> (PM10)</td>
<td>50 μg/m³, 24-hr avg. 20 μg/m³, annual arithmetic mean</td>
<td>150 μg/m³, 24-hr avg.</td>
<td>(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</td>
</tr>
<tr>
<td><strong>Fine Particulate Matter</strong> (PM2.5)</td>
<td>12 μg/m³, annual arithmetic mean</td>
<td>35 μg/m³, 24-hr avg. (three-year average of 98th percentile) 15 μg/m³, annual arithmetic mean (3-year average)</td>
<td>(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</td>
</tr>
<tr>
<td><strong>Carbon Monoxide</strong></td>
<td>20 ppm, 1-hr avg. 9.0 ppm, 8-hr avg.</td>
<td>35 ppm, 1-hr avg. 9 ppm, 8-hr avg.</td>
<td>(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</td>
</tr>
<tr>
<td><strong>Sulfur Dioxide</strong>&lt;sup&gt;3&lt;/sup&gt;</td>
<td>0.25 ppm, 1-hr. avg. 0.04 ppm, 24-hr avg.</td>
<td>0.075 ppm, 1-hr avg.</td>
<td>Bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in person with asthma</td>
</tr>
<tr>
<td>Air Pollutant</td>
<td>State Standard</td>
<td>Federal Primary Standard</td>
<td>Most Relevant Health Effects</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------------</td>
<td>------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Lead</td>
<td>1.5 µg/m³, 30-day avg.</td>
<td>1.5 µg/m³, calendar quarter</td>
<td>(a) Increased body burden, and (b) Impairment of blood formation and nerve conduction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.15 µg/m³, three month rolling average</td>
<td></td>
</tr>
<tr>
<td>Visibility-Reducing</td>
<td>Reduction of visual range to less than 10</td>
<td>None</td>
<td>Visibility impairment on days when relative humidity is less than 70%</td>
</tr>
<tr>
<td>Particles</td>
<td>miles at relative humidity less than 70%, 8-hour avg, (10:00 AM–6:00 PM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sulfates</td>
<td>25 µg/m³, 24-hr avg.</td>
<td>None</td>
<td>(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</td>
</tr>
<tr>
<td>Hydrogen Sulfide</td>
<td>0.03 ppm, 1-hr avg.</td>
<td>None</td>
<td>Odor annoyance</td>
</tr>
<tr>
<td>Vinyl Chloride</td>
<td>0.01 ppm, 24-hr avg.</td>
<td>None</td>
<td>Known carcinogen</td>
</tr>
</tbody>
</table>


µg/m³ = microgram per cubic meter.
ppm = parts per million by volume.

1 On March 12, 2008, the U.S. EPA revised the federal ozone standard from 0.08 ppm to 0.075 ppm. The standard became effective on May 27, 2008.
2 On January 25, 2010, the U.S. EPA promulgated a new 1-hour NO₂ standard. The new 1-hour standard is 0.100 parts per million (188 micrograms per cubic meter) and became effective on April 12, 2010.
3 On June 3, 2010, the U.S. EPA issued a new 1-hour SO₂ standard. The new 1-hour standard is 0.075 parts per million (196 micrograms per cubic meter). 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.
4 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.
5 On October 15, 2008, the U.S. EPA revised the federal lead standard to include 0.15 µg/m3 based on a three-month rolling average.

**AMBIENT AIR MONITORING FOR CRITERIA POLLUTANTS**

CARB has established and maintains a network of sampling stations in conjunction with local air pollution control districts (APCDs) and air quality management districts (AQMDs), private contractors, and the National Park Service. The air quality sampling stations are referred to as the State and Local Air Monitoring Stations (SLAMS) network. The closest monitoring station to the project is located within the UC Davis campus. This station monitors ambient pollutant concentrations of O₃ and NO₂. The next nearest monitoring station to the site is located in Woodland on Gibson Road, approximately 14 miles northwest of the project site. This station monitors ambient pollutant concentrations of PM10 and PM2.5. The nearest monitoring station to the project site that monitors CO and SO₂ is located at Del Paso Manor in Sacramento, approximately 25 miles to the east of the project site.
Table 4.1-2, Ambient Pollutant Concentrations Registered Nearest to the Project Site, lists the measured ambient pollutant concentrations and the violations of state and federal standards that have occurred at the above mentioned monitoring stations from 2007 through 2009, the most recent years for which data are available. As shown, the monitoring stations have registered values above state and federal standards for O3 and PM10, and the federal standard for PM2.5. Concentrations of CO, NO2, SO2, lead and sulfate have not been exceeded anywhere within the basin for several years. Values for lead and sulfate are not presented in the table below since ambient concentrations are well below the state standards. Hydrogen sulfide, vinyl chloride, and visibility reducing particles were not monitored by CARB or the YSAQMD in the SVAB during the period from 2007 to 2009.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Standards¹</th>
<th>Year</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2007</td>
<td>2008</td>
<td>2009</td>
<td></td>
</tr>
<tr>
<td><strong>OZONE (O₃)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum 1-hour concentration monitored (ppm)</td>
<td>0.105</td>
<td>0.112</td>
<td>0.092</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum 8-hour concentration monitored (ppm)</td>
<td>0.091</td>
<td>0.099</td>
<td>0.082</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of days exceeding state 1-hour standard</td>
<td>0.09 ppm</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Number of days exceeding state 8-hour standard</td>
<td>0.070 ppm</td>
<td>4</td>
<td>10</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Number of days exceeding federal 8-hour standard²</td>
<td>0.075 ppm</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>CARBON MONOXIDE (CO)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum 1-hour concentration monitored (ppm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum 8-hour concentration monitored (ppm)</td>
<td>2.90</td>
<td>2.49</td>
<td>2.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of days exceeding state 8-hour standard</td>
<td>9.0 ppm</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Number of days exceeding federal 8-hour standard</td>
<td>9 ppm</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>NITROGEN DIOXIDE (NO₂)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum 1-hour concentration monitored (ppm)</td>
<td>0.046</td>
<td>0.048</td>
<td>0.040</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual average concentration monitored (ppm)</td>
<td>0.008</td>
<td>0.009</td>
<td>0.007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of days exceeding state 1-hour standard</td>
<td>0.18 ppm</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Number of days exceeding state 1-hour standard³</td>
<td>0.100 ppm</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>PARTICULATE MATTER (PM10)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum 24-hour concentration monitored (μg/m³)</td>
<td>119.0</td>
<td>183.3</td>
<td>64.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual average concentration monitored (μg/m³)</td>
<td>25.3</td>
<td>33.4</td>
<td>21.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of samples exceeding state standard⁴</td>
<td>50 μg/m³</td>
<td>3</td>
<td>8</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Number of samples exceeding federal standard</td>
<td>150 μg/m³</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>PARTICULATE MATTER (PM2.5)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum 24-hour concentration monitored (μg/m³)</td>
<td>42.0</td>
<td>41.9</td>
<td>27.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual average concentration monitored (μg/m³)</td>
<td>8.2</td>
<td>—</td>
<td>7.5</td>
<td></td>
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<tr>
<td>Number of samples exceeding federal standard</td>
<td>35 μg/m³</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>SULFUR DIOXIDE (SO₂)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum 1-hour concentration monitored (ppm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum 24-hour concentration monitored (ppm)</td>
<td>0.004</td>
<td>0.002</td>
<td>0.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pollutant</td>
<td>Standards</td>
<td>2007</td>
<td>2008</td>
<td>2009</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-----------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>Number of samples exceeding state 1-hour standard</td>
<td>0.04 ppm</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Number of samples exceeding state 24-hour standard</td>
<td>0.14 ppm</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Sources:
— No air quality data received for this year.
1 Parts by volume per million of air (ppm), micrograms per cubic meter of air (μg/m³), or annual arithmetic mean (aam).
2 Federal 8-hour O₃ standard was revised to 0.075 ppm in March 2008. Statistics are based on the current standard.
3 The U.S. EPA has promulgated a new 1-hour NAAQS for NO₂. The new 1-hour standard is 0.100 parts per million (188 micrograms per cubic meter) and became effective on April 12, 2010.
4 PM10 samples are usually taken every 6 days whereas PM2.5 samples are collected every 3 days.

**TOXIC AIR CONTAMINANTS**

In addition to criteria pollutants, CARB periodically assesses the health impacts and ambient levels of toxic air contaminants in California. The U.S. EPA assesses health impacts for hazardous air pollutants. A toxic air contaminant is defined by California Health and Safety Code (CARB 2008):

> “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.

As noted in the definition above, all U.S. EPA hazardous air pollutants are considered to be toxic air contaminants. CARB has assessed inhalation cancer risk for the state and has provided risk maps based on the Assessment System for Population Exposure Nationwide (ASPEN) dispersion model (U.S. EPA n.d.(a)). Based on CARB’s assessment, the largest contributor to inhalation cancer risk is diesel emissions, which is consistent with the result of other studies, such as the South Coast Air Quality Management District’s Multiple Air Toxics Exposure Study III (SCAQMD 2008).

In 2004, CARB conducted a health risk assessment of airborne particulate matter emissions from diesel-fueled locomotives at the Union Pacific J.R. Davis Yard located in Roseville, California. The study found that the background cancer risk for the broader Sacramento region was 360 in a million for diesel particulate matter and 520 in a million for all toxic air contaminants (CARB 2004).

**SENSITIVE RECEPTORS**

Sensitive populations (sensitive receptors) are more susceptible to the effects of air pollution than is the population at large. Sensitive receptors include hospitals, schools, convalescent facilities, and residential areas or other facilities that house or attract children, the elderly, or people with illnesses or others who are especially sensitive to the effects of air pollutants (YSAQMD 2007). Sensitive receptors that are near localized sources of criteria pollutants, toxic air contaminants and CO are of particular concern. For the purposes of impact assessment, the definition of sensitive receptors is typically expanded to include residences, playgrounds, rehabilitation centers, and athletic facilities.
There are no sensitive receptors on the proposed project site or within the California National Primate Research Center (CNPRC). The core area is setback from the closest roadways by 400 feet and the proposed project would be approximately 600 feet from the closest roadway. The nearest sensitive receptor to the project site is the Grace Valley Christian Academy, which is approximately 1,600 feet northeast of the site.

4.3.2 Regulatory Consideration

Section 4.3 of the 2003 LRDP EIR addresses the regulatory background for air quality assessments for the campus through the 2015-16 academic year (UCD LRDP 2003). The following discussion summarizes information presented in the ‘Environmental Setting’ subsection of Section 4.3 of the 2003 LRDP EIR, updated with current data as necessary.

The project area is subject to major air quality planning programs established under both the federal Clean Air Act (CAA) and the California Clean Air Act (CCAA). Both the federal and state statutes provide for ambient air quality standards to protect public health, timetables for progressing toward achieving and maintaining ambient standards, and the development of plans to guide the air quality improvement efforts of state and local agencies.

FEDERAL

The U.S. EPA is responsible for enforcing the federal CAA and the NAAQS that the act establishes. This agency also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and those that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking.

The CAA was originally adopted in 1970, but was amended most recently in 1990 with regulations that better protect the public’s health and create more efficient methods of lowering pollutant emissions. The amendments established more stringent standards for hydrocarbons, NOX, and CO emissions in order to reduce O3 and CO levels in heavily populated areas. Fuels became more strictly regulated, requiring new fuels to be less volatile, contain less sulfur (regarding diesel fuels), and have higher levels of oxygenates (oxygen-containing substances to improve fuel combustion).

The 1990 Clean Air Act Amendments (CAAA) lists 189 hazardous air pollutants (HAPs), which are carcinogenic, mutagenic, and/or reproductive toxicants, to be reduced. The air toxics program under the CAA involves locating all major (greater than 10 tons per year [tpy]) stationary and area emission sources in order to implement Maximum Achievable Control Technology (MACT) to reduce HAP emissions and their associated health impacts.

Based on monitoring results, the U.S. EPA designates air basins or portions of air basins as being in “attainment” or “nonattainment” for each of the criteria pollutants. Areas that do not meet the standards are classified as nonattainment areas. The NAAQS (other than O3, PM10, PM2.5, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O3, PM10, and PM2.5 are based on statistical calculations over one- to three-year periods, depending on the pollutant. The status of Yolo County with respect to attainment with the NAAQS is summarized in Table 4.1-3.
### Table 4.1-3

#### Yolo County Attainment Status

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Federal Standards</th>
<th>State Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone 1-hour</td>
<td>No federal standard</td>
<td>Nonattainment/Serious</td>
</tr>
<tr>
<td>Ozone 8-hour</td>
<td>Nonattainment/Severe-15&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Nonattainment</td>
</tr>
<tr>
<td>PM&lt;sub&gt;10&lt;/sub&gt;</td>
<td>Attainment/Unclassified</td>
<td>Nonattainment</td>
</tr>
<tr>
<td>PM&lt;sub&gt;2.5&lt;/sub&gt;</td>
<td>Nonattainment (Eastern Part)</td>
<td>Unclassified</td>
</tr>
<tr>
<td>Carbon Monoxide</td>
<td>Attainment/Unclassified</td>
<td>Attainment</td>
</tr>
<tr>
<td>Nitrogen Dioxide</td>
<td>Attainment/Unclassified</td>
<td>Attainment</td>
</tr>
<tr>
<td>Sulfur Dioxide</td>
<td>Attainment/Unclassified</td>
<td>Attainment</td>
</tr>
<tr>
<td>Lead</td>
<td>Attainment</td>
<td>Attainment</td>
</tr>
<tr>
<td>Hydrogen Sulfide</td>
<td>No federal standards</td>
<td>Unclassified</td>
</tr>
<tr>
<td>Sulfates</td>
<td>No federal standards</td>
<td>Attainment</td>
</tr>
<tr>
<td>Vinyl Chloride</td>
<td>No federal standards</td>
<td>Unclassified</td>
</tr>
<tr>
<td>Visibility-Reducing Particulates</td>
<td>No federal standards</td>
<td>Unclassified</td>
</tr>
</tbody>
</table>


<sup>1</sup> A formal request for voluntary reclassification from “serious” to “severe” for the 8-hour ozone nonattainment area with an associated attainment deadline of June 15, 2019, was submitted by CARB to the U.S. EPA on February 14, 2008. The US EPA approved the reclassification request on April 15, 2010.

<sup>2</sup> The U.S. EPA has promulgated a new 1-hour NAAQS for NO<sub>2</sub>. The new 1-hour standard is 0.100 parts per million (188 micrograms per cubic meter) and became effective on April 12, 2010. The U.S. EPA will make nonattainment area designations for the 1-hour standard by 2012.

States with basins that are not in attainment with the NAAQS are required to submit a State Implementation Plan (SIP) that describes how the air basin will achieve the federal standards by specified dates. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. SIPs are not single documents, but are a compilation of state regulations, air quality management/attainment plans, programs, and air district rules that are continuously revised to meet CAA amendment requirements. Local air districts, such as the YSAQMD, and other agencies prepare air quality management/attainment plans and submit them to CARB for review and approval. Once a plan is approved, CARB forwards the plan to the U.S. EPA as a SIP revision. The U.S. EPA reviews the plan to determine if it conforms to the 1990 amendments and would achieve that air basin’s air quality goals.

Upon a satisfactory review, approval of the plan is published in the Federal Register. In general, air quality management/attainment plans contain a discussion of ambient air data and trends; a baseline emissions inventory; future-year projections of emissions, which account for growth projections and already adopted control measures; a comprehensive control strategy of additional measures needed to reach attainment; attainment demonstration, which generally involves complex modeling; and contingency measures. Plans may also include interim milestones for progress toward attainment.
STATE

The California Clean Air Act (CCAA) established a legal mandate for air basins to achieve the CAAQS by the earliest practical date. The CAAQS, established by CARB, apply to the same seven pollutants as the NAAQS, as well as to sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. CAAQS are more stringent than the NAAQS, and in the case of PM10 and SO2, far more stringent. As a branch of the California Environmental Protection Agency (CalEPA), CARB oversees air quality monitoring, planning, and control throughout California. It is primarily responsible for implementing the CCAA, ensuring conformance with CAA requirements, and for regulating emissions from motor vehicles and consumer products within the state. In addition, CARB sets the CAAQS and control measures for toxic air contaminants (TACs). CARB approves the regional air quality management/attainment plans for incorporation into the SIP and is responsible for preparing those portions of the SIP related to mobile source emissions. CARB establishes new standards for vehicles sold in California and for various types of commercially available equipment. It also sets fuel specifications to further reduce vehicular emissions.

Based on monitoring results, the CARB designates air basins or portions of air basins as being in “attainment” or “nonattainment” for each of the criteria pollutants and other pollutants. 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. In addition, Health and Safety Code Section 39608 requires CARB to use the designation criteria to classify areas of the state and to annually review those area designations. The CAAQS are not to be exceeded during a three-year period. The status of Yolo County with respect to attainment with the CAAQS is summarized in Table 4.1-3, above.

REGIONAL

Sacramento Area Council of Governments

The Sacramento Area Council of Governments (SACOG) is an association of local governments in the Sacramento region that provides transportation planning and funding for the region. Although SACOG 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 Sacramento region, it is responsible, pursuant to Section 176(c) of the 1990 amendments to the federal CAA, for providing current population, employment, travel, and congestion projections for regional air quality planning efforts. These projections are used by the APCDs and AQMDs in the Sacramento region in their air quality management plans.

Yolo-Solano Air Quality Management District

The YSAQMD has jurisdiction over air quality in the Davis area, including all of Yolo County and the northeastern portion of Solano County. The YSAQMD is one of five air districts located in the SVAB. The YSAQMD regulates most air pollutant sources (stationary sources), with the exception of motor vehicles, aircraft, and agricultural equipment, which are regulated by the CARB or U.S. EPA. State and local government projects, as well as projects proposed by the private sector, are subject to requirements of the local air district and the state CCAA if the sources are regulated by the YSAQMD.

The YSAQMD and the four other air districts in the SVAB are responsible for developing regional air quality management plans that satisfy the requirements of the federal CAA and the CCAA. The plans include strategies and measures that demonstrate attainment of the ambient air quality standards. A summary of the federal and state plans is provided in the following sections.
YSAQMD Air Quality Plans
Sacramento Region Clean Air Plan (CAP) Update/Sacramento Regional Nonattainment Area 8-Hour Ozone Rate-of-Progress Plan
The Sacramento Region CAP Update/Sacramento Regional Nonattainment Area 8-Hour Ozone Rate-of-Progress Plan (8-Hour Ozone Plan) updates the region’s CAP to addresses the conformity lapse through updates to the emission inventory and establishing new motor vehicle emission budgets. In addition to updating the CAP, the Plan also fulfills the federal 8-hour ozone requirements for the 2002-2008 Rate-of-Progress Plan for the Sacramento regional nonattainment area. The Sacramento region was designated as a “serious” nonattainment area for the federal 8-hour ozone standard with an attainment deadline of June 2013. The 8-Hour Ozone Plan addresses how the region will meet the federal 8-hour ozone standard by this attainment deadline.

Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan
The 2009 Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan was adopted on December 19, 2008. The Sacramento region was classified by the U.S. EPA as a “serious” nonattainment area on June 15, 2004, for the federal 8-hour ozone standard with an attainment deadline of June 15, 2013. However, since the Sacramento region needs to rely on the longer term emission reduction strategies from state and federal mobile source control programs, the 2013 attainment date cannot be met. Consequently, on February 14, 2008, CARB, on behalf of the air districts in the Sacramento region, submitted a letter to the U.S. EPA requesting a voluntary reclassification (bump-up) of the Sacramento federal nonattainment area from a “serious” to a “severe-15” 8-hour ozone nonattainment area with an extended attainment deadline of June 15, 2019.3 The U.S. EPA approved the reclassification request on April 15, 2010. The 8-Hour Ozone Attainment Plan includes the information and analyses to fulfill the federal CAA requirements for demonstrating reasonable further progress and attainment of the 1997 8-hour ozone NAAQS for the Sacramento region.

Air Quality Attainment Plan
The CCAA of 1988 requires areas not attaining the CAAQS to achieve and maintain the state standards by the earliest practicable date. Air districts designated as nonattainment for all criteria pollutants are required to prepare an attainment plan (California Health and Safety Code Section 40911). In compliance with the CCAA, the YSAQMD prepared the 1992 Air Quality Attainment Plan (AQAP) to address the non-attainment status for ozone. The 1992 AQAP was designed to make progress toward attaining the state ozone standard and contained preliminary implementation schedules for control programs on stationary sources, transportation, and indirect sources, and a vehicle and fuels program. Yolo County is also nonattainment for state PM10 standard. The YSAQMD is not required to prepare a PM10 attainment plan, but is required to list cost effective particulate matter control measures and develop a schedule for their implementation.

The CCAA requires that air districts assess its progress toward attaining the CAAQS once every three years. The triennial assessment is to report the extent of air quality improvement and the amounts of emission reductions achieved from control measures for the preceding three year period. The YSAQMD adopted the most recent 2010 Triennial Assessment and Plan Update in May 2010. The report identifies all feasible measures the YSAQMD will study or adopt over the next three years. The report also describes historical trends in air quality, updates emissions inventories, and evaluates the YSAQMD’s implementation of air pollution control measures.

3 In order to attain by June 15th, the prior year’s ozone season would need to be in attainment, making 2018 to be the attainment demonstration analysis year.
YSAQMD Handbook for Assessing and Mitigating Air Quality Impacts
CEQA requires local governments to assess air quality impacts, and recommend and enforce feasible mitigation of potential air quality impacts by conditioning discretionary permits, and by monitoring and ensuring implementation of the mitigation. To facilitate compliance with CEQA requirements, the YSAQMD has published a Handbook for Assessing and Mitigating Air Quality Impacts (CEQA Handbook), which was most recently updated in 2007. The CEQA Handbook provides methods for the analysis and review of air quality impacts from land use development projects. It also provides useful tools to identify proposed development projects that may have a significant adverse effect on air quality. In addition, the CEQA Handbook also provides mitigation strategies project proponents can integrate into their projects to reduce air quality impacts.

YSAQMD Rules and Regulations
The YSAQMD’s primary means of implementing its attainment plans is through its adopted rules and regulations. The proposed project would be subject to the rules adopted by the YSAQMD that are designed to reduce and control pollutant emissions throughout the basin. A summary of the noteworthy regulations and rules is provided below:

- **Rule 2-3 (Ringelmann Chart/Opacity):** This rule limits the discharge of air contaminants (i.e., fugitive dust, diesel exhaust) into the atmosphere through visible emissions and opacity.

- **Rule 2-5 (Nuisance):** This rule applied to any source operation that emits air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property. In the event that the project or construction of the project creates a public nuisance, it could be in violation and subject to district enforcement action.

- **Rule 2-11 (Particulate Matter Concentration):** The purpose of this rule is to limit the quantity of particulate matter in the atmosphere through establishment of an emission concentration limit.

- **Rule 2-12 (Specific Contaminants):** The purpose of this rule is to limit the emission of sulfur compounds and combustion contaminants through establishment of emission concentrations.

- **Rule 2-14 (Architectural Coatings):** The purpose of this rule is to limit the quantity of ROGs in architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within the District.

- **Regulation III (Permit System):** This rule requires that any project constructing, altering, replacing, or operating any stationary source operation, the use of which emits, may emit, or may reduce emissions, to obtain an Authority to Construct (ATC) and a Permit to Operate (PTO). This rule applies to the construction and operation of new or modified processes and equipment, except those specifically exempted from permitting requirements.

- **Rule 3-4 (New Source Review):** This rule applies to all new and modified stationary sources that would emit, after construction, a criteria pollutant for which there is an established NAAQS or CAAQS. The rule provides mechanisms by which an ATC can be granted without interfering with the basin’s attainment with ambient air quality standards. These mechanisms offer methods to generate no net increases in emissions of nonattainment pollutants over specific thresholds as detailed in the rule.
LOCAL PLANS AND POLICIES
This environmental analysis is tiered from the 2003 LRDP EIR (State Clearinghouse No. 2002102092). The 2003 LRDP is a comprehensive land use plan that was adopted in 2003 to guide physical development on campus to accommodate projected enrollment increases and expanded and new program initiatives through the 2015-16 academic year. The proposed project is an element of the growth that was anticipated in the 2003 LRDP and evaluated in the LRDP EIR. The 2003 LRDP noted that the campus would expand research facilities, construct an additional 2.5 million assignable square feet (ASF) of building space on the campus, and identified a land use objective of establishing an expanded zone at the CNPRC to accommodate future growth (see UC Davis 2003 LRDP, page 60). The 2003 LRDP EIR evaluated the impacts of that projected growth, including the impacts from some of that growth occurring at the CNPRC.
Tiering of the environmental analysis for the proposed project pursuant to the CEQA Guidelines allows this Focused Tiered Draft EIR to rely on the 2003 LRDP EIR 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 2003 LRDP EIR for which there is no significant new information or change in circumstances that would require further analysis; and
- Assessment of cumulative impacts.

In addition, mitigation measures that were previously adopted for the 2003 LRDP EIR that are related to, and designed to reduce the impacts of, this project are identified in this Draft EIR. Since these mitigation measures are already being carried out as part of implementation of the 2003 LRDP, they are included in the proposed project and would not be readopted. Nothing in this Draft EIR in any way alters the obligations of the campus to implement the LRDP mitigation measures.

4.3.3 Standards of Significance
The impacts from the implementation of the proposed project on air quality 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 nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors; or
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

The State CEQA Guidelines further state that the significance thresholds established by the applicable air quality management or air pollution control district may be relied on to make the determinations above. Therefore, the air quality significance thresholds contained in the YSAQMD’s CEQA Handbook were used to assess the project’s impact relative to the significance criteria listed above. These thresholds are based on the Appendix G Standards of Significance. The YSAQMD’s thresholds of significance for construction- and operational-related emissions are presented in Table 4.1-4, YSAQMD Air Quality Significance Thresholds. If the proposed project’s emissions would exceed any of the emission thresholds listed in Table 4.1-4, the impact from the emissions of the specific pollutant will be considered a significant impact.
Table 4.1-4
YSAQMD Air Quality Significance Thresholds

<table>
<thead>
<tr>
<th>Phase</th>
<th>ROG (tpy)</th>
<th>NOx (tpy)</th>
<th>CO</th>
<th>PM10 (lbs/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>10</td>
<td>10</td>
<td>Not to exceed CAAQS</td>
<td>80</td>
</tr>
<tr>
<td>Operational</td>
<td>10</td>
<td>10</td>
<td>Not to exceed CAAQS</td>
<td>80</td>
</tr>
</tbody>
</table>


In addition to the mass emission thresholds presented in Table 4.1-4, the YSAQMD’s CEQA Handbook states that a project’s impact is considered significant if it would result in the:

- Probability of contracting cancer for the Maximally Exposed Individual (MEI) equal to 10 in one million or more; or
- Ground-level concentrations of non-carcinogenic toxic air contaminants that would result in a Hazard Index equal to 1 for the MEI or greater.

While the YSAQMD Risk Management Policy provides a basis for the thresholds for TACs from stationary sources, this policy does not cover TACs from mobile sources. The YSAQMD has no permitting or other regulatory authority over mobile sources. Therefore, no specific mobile source TAC threshold is applicable.

According to the YSAQMD CEQA Handbook, offensive odors should be evaluated with respect to the general nuisance rule (California Health and Safety Code Section 41700 and YSAQMD Rule 2-5). A project would have a significant odor impact if it would:

- Reasonably be expected to generate odorous emissions in such quantities as to cause detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which may endanger the comfort, repose, health, or safety of any such person or the public, or which may cause, or have a natural tendency to cause, injury or damage to business or property.

The YSAQMD recommends that projects evaluate cumulative air quality impacts on ozone and localized pollutants. The proposed project would result in cumulatively significant impacts under the following conditions:

- Any proposed project that would individually have a significant air quality impact (see Table 4.1-4 above for project level significance thresholds) would also be considered to have a significant cumulative impact.
- CO impacts are cumulatively significant when modeling shows that the combined emissions from the project and other existing and planned projects (i.e., background concentration) will exceed ambient air quality standards. The cumulative impact should be evaluated using the screening criteria in the YSAQMD CEQA Handbook.
4.3.4 Methodology

The methodology used to evaluate the air quality impacts associated with construction and operation of the proposed project is based on the YSAQMD’s CEQA Handbook, the URBEMIS2007 Environmental Management Software, and information provided in the *Software User's Guide [for] URBEMIS2007 for Windows*. The emissions estimates are based on typical construction phasing schedules and equipment activity levels. Some elements of this analysis are based on data provided by the campus such as trip generation rates. Where information was not available, conservative assumptions were used. While not a requirement of CEQA, the analysis of potential adverse air quality impacts in this Draft 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 no potential effects of the proposed project are understated. Emission calculations and air quality modeling conducted for the project are provided in Appendix B.

4.3.5 LRDP Mitigation Measures Included in the proposed project

Mitigation measures in the 2003 LRDP EIR that are applicable to the proposed project are presented below. Since these previously adopted mitigation measures are already being carried out as part of implementation of the 2003 LRDP, they are included in and are a part of the proposed project and will not be readopted.

---

### Table 4.1-5
Mitigation Measures Incorporated in the 2003 LRDP EIR

<table>
<thead>
<tr>
<th>Mitigation Measure</th>
<th>Description</th>
</tr>
</thead>
</table>
| 4.3-3(a)           | The campus shall include in all construction contracts the measures specified below to reduce fugitive dust impacts, including but not limited to the following:  
  - All disturbed areas, including storage piles, which are not being actively utilized for construction purpose, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, or vegetative ground cover.  
  - All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.  
  - All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.  
  - When demolishing buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.  
  - When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or at least two feet of freeboard space from the top of the container shall be maintained.  
  - All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices also is expressly forbidden.  
  - Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions by utilizing sufficient water or chemical stabilizer/suppressant. |
| 4.3-3(b)           | The campus shall include in construction contracts for large construction projects near receptors, the following control measures:  
  - Limit traffic speeds on unpaved roads to 15 mph.  
  - Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.  
  - To the extent feasible, limit area subject to excavation, grading, and other construction activity at any one time.  
  - Limit the area subject to excavation, grading, and other construction activity at any one time. |
| 4.3-3(c)           | The campus shall implement the following control measures to reduce emissions of ozone precursors from construction equipment exhaust:  
  - To the extent that equipment is available and cost effective, the campus shall encourage contractors to use alternate fuels and retrofit existing engines in construction equipment.  
  - Minimize idling time to a maximum of 5 minutes when construction equipment is not in use.  
  - To the extent practicable, manage operation of heavy-duty equipment to reduce emissions.  
  - To the extent practicable, employ construction management techniques such as timing construction to occur outside the ozone season of May through October, or scheduling equipment use to limit unnecessary concurrent operation. |

*Source: UC Davis, 2003 LRDP EIR, Section 4.3, Air Quality.*
4.3.6 Project Impacts and mitigation measures

IMPACTS ADEQUATELY ANALYZED IN THE 2003 LRDP EIR OR NOT APPLICABLE TO THE PROJECT

The Initial Study deferred analysis of the project’s air quality impacts to the Draft EIR. Therefore, all of the CEQA checklist items listed above in Section 4.1.3 are addressed in the following analysis.

PROJECT LEVEL IMPACTS

Impact AIR-1: Construction of the proposed project would not result in construction emissions that exceed the YSAQMD thresholds of significance. (Less than Significant)

The proposed project would result in the construction of an approximately 20,000 gross square foot (GSF) building with office and laboratory space. Construction-related emissions can be designated as on-site or off-site. On-site emissions generated during construction primarily consist of exhaust emissions (ROGs, NOX, CO, SOX, PM10, and PM2.5) from heavy-duty diesel powered construction equipment operation, fugitive dust (PM10 and PM2.5) from disturbed soil, and evaporative ROG emissions from asphalt paving and architectural coatings (i.e., painting). Off-site emissions during the construction phase normally consist of exhaust emissions from worker commute trips and on-road haul and vendor trucks. Construction of the project is anticipated to last approximately one year. 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 are conservatively assumed to operate continuously for six to eight hours per day.

The URBEMIS2007 Environmental Management Software was used to estimate the emissions associated with construction of the proposed project. URBEMIS2007 is a land use and transportation based computer model designed to estimate regional air emissions from new land use development projects. The model accounts for certain meteorological conditions that characterize specific air basins in California. The model was developed by CARB and is approved for use by the YSAQMD. The URBEMIS2007 model requires the user to input certain variables for calculating emissions. The information described in the previous paragraph, which was used as input variables in the model, is based on conservative or high-end estimates. Normal day-to-day variability in construction activities introduces uncertainties when quantifying daily maximum emissions. However, by relying on high-end estimates, the emissions calculated from the model would account for any emission peaks associated with day-to-day variability.

The URBEMIS2007 emission calculations assume the use of standard construction practices to reduce fugitive dust emissions. In the URBEMIS2007 model, the emission calculations take into account compliance with Best Management Practices (BMPs) by incorporating the measures below (see YSAQMD CEQA Handbook, page 27) as well as compliance with the 2003 LRDP EIR mitigation measures in Table 4.1-5.

- Watering of exposed surfaces two times daily, which is estimated to reduce fugitive dust emissions from this source (PM10 and PM2.5) by 55 percent; and
- Watering of unpaved roads two times daily, which is estimated to reduce fugitive dust emissions from this source (PM10 and PM2.5) by 55 percent.
- Limit traffic speeds on unpaved roads to 15 miles per hour, which is estimated to reduce fugitive dust emissions from this source (PM10 and PM2.5) by 44 percent.
Based on the above information, the estimated construction emissions are provided below in Table 4.1-6, Estimated Construction Emissions. As the results in the table show, construction of the project would not result in emissions that would exceed the YSAQMD thresholds of significance for construction.

<table>
<thead>
<tr>
<th>Construction Emissions</th>
<th>ROG</th>
<th>NOx</th>
<th>CO</th>
<th>SOx</th>
<th>PM10</th>
<th>PM2.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Pounds per Day (lbs/day)</td>
<td>8.65</td>
<td>45.05</td>
<td>29.43</td>
<td>0.01</td>
<td>10.33</td>
<td>4.13</td>
</tr>
<tr>
<td>Maximum Tons per Year (tpy)</td>
<td>0.33</td>
<td>1.59</td>
<td>1.12</td>
<td>0.00</td>
<td>0.24</td>
<td>0.12</td>
</tr>
<tr>
<td>YSAQMD Threshold</td>
<td>10 tpy</td>
<td>10 tpy</td>
<td>—</td>
<td>—</td>
<td>80 lbs/day</td>
<td>—</td>
</tr>
<tr>
<td>Exceeds Threshold?</td>
<td>NO</td>
<td>NO</td>
<td>—</td>
<td>—</td>
<td>NO</td>
<td>—</td>
</tr>
</tbody>
</table>

Source: Impact Sciences, Inc. Emissions calculations are provided in Appendix B.
Totals in the table may not appear to add exactly due to rounding in the computer model calculations.

**Mitigation Measures:** No mitigation required.

**Impact AIR-2:** Operation of the proposed project would not result in operational emissions that exceed the YSAQMD thresholds of significance. *(Less than Significant)*

The proposed project would result in the operation of a one-story building located immediately north of the existing animal research building at the CNPRC with an overall size of approximately 20,000 GSF. The building will include approximately 1,275 assignable square feet (ASF) of office/office support space and approximately 10,500 ASF of laboratory/laboratory support space. Operations at the building would include pulmonary function testing, animal holding, tissue culture and other “wet” lab uses, office and meeting use, and laboratory and building maintenance. Total new staff associated with the project is 25 persons. Full development and occupancy is assumed to occur by 2012 for purposes of analysis in this Draft EIR.

Operational emissions would be generated by mobile sources, area sources, and stationary sources as a result of normal day-to-day activity at the project site. Mobile source emissions would be generated by motor vehicles traveling to and from the project site. The 25 employees are estimated to generate a maximum of 100 trips per day. Area source emissions would be generated by the operation of landscape maintenance equipment, and the application of architectural coatings.5 Stationary source emissions would be generated from point (stationary) sources located on the project site. Stationary sources include two boilers and an emergency generator. Each boiler is anticipated to be rated at 1.5 million British thermal units (MMBtu). Only one boiler would operate at any given time (the second is for standby purposes only). The boiler is conservatively assumed to operate for 24 hours per day (8,760 hours per year) at 75 percent capacity. The emergency generator is anticipated to be rated at 600 kilowatts (kW) and would operate a maximum of 1 hour per week for testing (maximum of 50 hours per year).

URBEMIS2007 was used to quantify mobile source and area source emissions. Stationary source emissions were calculated based on operating data provided by the campus and emission factors from the

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5 Natural gas emissions are included as part of stationary source emissions and are calculated outside of the URBEMIS2007 program.
U.S. EPA’s *AP-42 Compilation of Air Pollutant Emission Factors* and other YSAQMD emission factors, as appropriate. Based on the above information, the project’s estimated operational emissions are provided below in Table 4.1-7, Estimated Operational Emissions. As the results in the table show, operation of the project would not result in emissions that would exceed the YSAQMD thresholds of significance for operations.

**Table 4.1-7**  
Estimated Unmitigated Operational Emissions

<table>
<thead>
<tr>
<th>Operational Emissions</th>
<th>ROG</th>
<th>NOx</th>
<th>CO</th>
<th>SOx</th>
<th>PM10</th>
<th>PM2.5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maximum Tons per Year (tpy)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile Sources</td>
<td>0.19</td>
<td>0.30</td>
<td>2.26</td>
<td>0.00</td>
<td>0.34</td>
<td>0.07</td>
</tr>
<tr>
<td>Area Sources</td>
<td>0.02</td>
<td>0.00</td>
<td>0.14</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Stationary Sources</td>
<td>0.07</td>
<td>0.76</td>
<td>0.44</td>
<td>0.00</td>
<td>0.07</td>
<td>0.07</td>
</tr>
<tr>
<td>Total</td>
<td>0.28</td>
<td>1.06</td>
<td>2.84</td>
<td>0.00</td>
<td>0.41</td>
<td>0.14</td>
</tr>
<tr>
<td><strong>Maximum Pounds per Day (lbs/day)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile Sources</td>
<td>1.05</td>
<td>2.05</td>
<td>12.82</td>
<td>0.01</td>
<td>1.88</td>
<td>0.38</td>
</tr>
<tr>
<td>Area Sources</td>
<td>0.19</td>
<td>0.02</td>
<td>1.55</td>
<td>0.00</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Stationary Sources</td>
<td>2.10</td>
<td>25.68</td>
<td>7.05</td>
<td>0.02</td>
<td>1.92</td>
<td>1.92</td>
</tr>
<tr>
<td>Total</td>
<td>3.34</td>
<td>27.75</td>
<td>21.42</td>
<td>0.03</td>
<td>3.81</td>
<td>2.31</td>
</tr>
<tr>
<td>YSAQMD Threshold</td>
<td>10 tpy</td>
<td>10 tpy</td>
<td>—</td>
<td>—</td>
<td>80 lbs/day</td>
<td>—</td>
</tr>
<tr>
<td>Exceeds Threshold?</td>
<td>NO</td>
<td>NO</td>
<td>—</td>
<td>—</td>
<td>NO</td>
<td>—</td>
</tr>
</tbody>
</table>

**Source:** Impact Sciences, Inc. Emissions calculations are provided in Appendix B. Totals in table may not appear to add exactly due to rounding in the computer model calculations.

**Mitigation Measures:** No mitigation required.

**Impact AIR-3:** The proposed project would not expose sensitive receptors to substantial concentrations of carbon monoxide that exceed the ambient air quality standards. *(Less than Significant)*

The proposed project would result in a maximum of 100 new vehicle trips per day. These trips would occur primarily during the morning and afternoon commuting hours, with lesser numbers occurring throughout the workday. The YSAQMD’s CEQA Handbook states that projects that would cause the peak-hour Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity to be reduced to an unacceptable LOS (typically LOS E or F) or would substantially worsen an already existing peak-hour LOS F on one or more streets or at one or more intersections in the project vicinity, could expose sensitive receptors to substantial concentrations of CO.

Cumulative development of the campus plus cumulative background growth would result in peak hour traffic volumes at the worst-case project intersection of Anderson Road and La Rue Road of 4,300 cars in the peak hour (UC Davis 2003 LRDP EIR, page 4.14-52). The proposed project is part of the projected LRDP growth and the new vehicle trips associated with the proposed project are a portion of the traffic analyzed in the LRDP EIR. The results of the 2003 LRDP EIR show that traffic under full development
of the campus under the 2003 LRDP at Anderson and La Rue Roads (the heaviest traveled intersection in the study area) would not cause a violation of the CO standards. Therefore, the proposed project would not contribute to a violation of the CO standard and would result in a less than significant impact.

**Mitigation Measures:** No mitigation required.

**Impact AIR-4:** The proposed project would not expose sensitive receptors to substantial concentrations of toxic air contaminants and the probability of contracting cancer for the Maximally Exposed Individual (MEI) would be less than 10 in one million and the non-carcinogenic Hazard Index would be less than 1.0. *(Less than Significant)*

Health risk assessment (HRA) calculations from campus operations through academic year 2015-16 were performed as part of the 2003 LRDP EIR. The analysis included all sources of TACs that existed in 2002-03 as well as projected future sources of TACs that are expected to be added to the campus as part of the growth on the campus envisioned under the 2003 LRDP. These projected future sources included additional laboratory space and stationary sources such as boilers and generators at the CNPRC. The analysis revealed that the cancer risk from full development under the 2003 LRDP would be less than 10 in one million for both the off-campus and on-campus Maximally Exposed Individual (MEI), assuming a 70-year exposure period for on- and off-site sensitive receptors. The non-cancer health risk was calculated in terms of a Hazard Index and was determined to be below 1.0. Therefore, the 2003 LRDP EIR concluded that development under the 2003 LRDP would not exceed either health risk standard, and the impact associated with TAC emissions would be less than significant. As this project is consistent with the 2003 LRDP Academic and Administrative land use designation and is a small portion of the CNPRC growth that was anticipated in the 2003 LRDP EIR, the proposed project would result in an incremental increase in TAC emissions that is within the levels modeled in the 2003 LRDP EIR and found to be less than significant. Therefore, the project’s impacts from emissions of TACs would be less than significant.

**Mitigation Measures:** No mitigation required.

**Impact AIR-5:** The proposed project would not create objectionable odors that could affect a substantial number of people. *(Less than Significant)*

The YSAQMD’s CEQA Handbook considers the following land uses potential sources of odors:

- Wastewater Treatment Facilities
- Chemical Manufacturing
- Sanitary Landfill
- Fiberglass Manufacturing
- Transfer Station
- Painting/Coating Operations (e.g. auto body shops)
- Composting Facility
- Food Processing Facility
- Petroleum Refinery
- Feed Lot/Dairy
- Asphalt Batch Plant
- Rendering Plant
The proposed project would not result in the development of any of these land uses. In addition, any trace odors emitted by the project would not impact sensitive receptors as the project would not locate sensitive receptors on-site and the nearest off-site receptor is approximately 1,600 feet to the northeast.

The campus research dairy, located on Russell Ranch and the WWTP, located on the south campus, are the only two sources of odors on the campus. Both are at a considerable distance from the proposed project. Therefore, the proposed project would not locate receptors onsite that would be impacted by odors. Therefore, the impact would be less than significant.

**Mitigation Measures:** No mitigation required.

**CUMULATIVE IMPACTS AND MITIGATION MEASURES**

**Impact AIR-6:** The proposed project 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*)

CEQA defines cumulative impacts as two or more individual effects which, when considered together, are either significant or “cumulatively considerable,” meaning they add considerably to a significant environmental impact. Cumulative impacts can result from individually minor but collectively significant projects (CEQA Guidelines Section 15355). An adequate cumulative impact analysis considers a project over time and in conjunction with other past, present, and reasonably foreseeable future projects whose impacts might compound those of the project being assessed.

According to the *YSAQMD’s CEQA Handbook*, project emissions that exceed the YSAQMD emission thresholds would have a significant cumulative impact unless offset. As shown in Table 4.1-6 and Table 4.1-7, the proposed project would not exceed the construction- or operational-related emission thresholds. In addition, as noted above, cumulative CO impacts from buildout of the 2003 LRDP would not exceed the ambient air quality standards and would be less than significant. Also as noted above, cumulative health impacts from buildout of the 2003 LRDP would not exceed a cancer risk probability of 10 in one million or a Hazard Index of 1.0 at the MEI and would be less than significant. Based on this analysis, the proposed project would result in a less than significant cumulative impact.

**Mitigation Measures:** No mitigation required.

### 4.3.7 References


4.4 GREENHOUSE GAS EMISSIONS

The 2003 LRDP EIR was certified before the passage of Assembly Bill 32 (Global Warming Solutions Act of 2006) and therefore did not analyze greenhouse gas emissions or climate change. Accordingly, the Tiered Initial Study for the Respiratory Diseases Center determined that an EIR would be prepared to consider potential project impacts associated with GHG emissions.

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 implementation of the proposed project. The section also provides a brief discussion of the applicable federal, state, regional, and local agencies that regulate, monitor, and control GHG emissions. The analysis in this Draft EIR determined that the proposed project would result in less than significant GHG impacts. Copies of the modeling runs to estimate GHG emissions associated with the proposed project and supporting technical data are found in Appendix C.

The following sources were used to prepare this section of the Draft EIR:
- UC Davis 2003 Long Range Development Plan (2003 LRDP)
- YSAQMD’s Handbook for Assessing and Mitigating Air Quality Impacts
- The UC Davis 2009-2010 Climate Action Plan

4.4.1 Environmental Setting

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 change in global climate has been a rise in the average global tropospheric temperature of 0.2 degree Celsius 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 21st 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 21st 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 21st century ranging from about 0.5 to 2 degrees Celsius (°C) (0.9 to 3.6 °F) and by the last 30 years of the 21st 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 troposphere6 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 is re-emitted by the Earth; and (3) GHGs in the upper atmosphere absorb or trap the long-wave radiation and re-emit it back towards the Earth and into space. This third process is the focus of current climate change actions.

While water vapor and carbon dioxide (CO2) 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 time period. The GWP of a gas is determined using CO2 as the reference gas, which has a GWP of 1 over 100 years (IPCC 1996).7 For example, a gas with a GWP of 10 is 10 times more potent than CO2 over 100 years. The use of GWP allows GHG emissions to be reported using CO2 as a baseline. The sum of each GHG multiplied by its associated GWP is referred to as “carbon dioxide equivalents” (CO2e). 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 CO2.

GREENHOUSE GASES
State law defines GHGs to include the following compounds:

• Carbon Dioxide (CO2). 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).

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6 The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth’s surface to 10 to 12 kilometers).

7 All Global Warming Potentials are given as 100-year values.
• **Methane (CH4).** 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 (N2O).** 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 lifetime (up to 50,000 years) (Energy Information Administration 2007). The GWPs of PFCs range from 5,700 to 11,900.

• **Sulfur Hexafluoride (SF6).** 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 CO2) (U.S. EPA n.d.[b]).

### 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 CO2 equivalents (MMTCO2E). 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. The top five countries

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8 The CO₂ equivalent emissions commonly are expressed as “million metric tons of carbon dioxide equivalent (MMTCO₂E).” The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP, such that MMTCO₂E = (million metric tons of a GHG) x (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 CO₂.

9 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. United Nations Framework Convention on Climate Change, “Annex I Parties – GHG total without LULUCF,” http:// unfccc.int/ghg_emissions_data/ghg_data_from_unfccc/time_series_annex_i/items/3841.php and
and the European Union accounted for approximately 55 percent of the total global GHG emissions according to the most recently available data (See Table 4.2-1, 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 4.2-1; however, the data is representative of currently available global inventory data.

### Table 4.2-1

**Top Five GHG Producer Countries and the European Union (Annual)**

<table>
<thead>
<tr>
<th>Emitting Countries</th>
<th>GHG Emissions (MMTCO2e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>7,250</td>
</tr>
<tr>
<td>United States</td>
<td>7,217</td>
</tr>
<tr>
<td>European Union (EU), 27 Member States</td>
<td>5,402</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>2,202</td>
</tr>
<tr>
<td>India</td>
<td>1,863</td>
</tr>
<tr>
<td>Japan</td>
<td>1,412</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>25,346</strong></td>
</tr>
</tbody>
</table>


**United States**

As noted in Table 4.2-1, the United States was the number two producer of global GHG emissions as of 2005. The primary GHG emitted by human activities in the United States was CO2, 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.10

**State of California**

The California Air Resources Board compiles GHG inventories for the State of California. Based on the 2006 GHG inventory data (i.e., the latest year for which data are available) for the 2000–2006 GHG emissions inventory, California emitted 484 million metric tons of carbon dioxide equivalent (MMTCO2e) including emissions resulting from imported electrical power in 2006 (CARB 2009). 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 434 MMTCO2e excluding emissions related to imported power (CARB 2009).

A California Energy Commission (CEC) emissions inventory report placed CO2 produced by fossil fuel combustion in California as the largest source of California’s GHG emissions in 2004, accounting for 80 percent of the total GHG emissions (California Energy Commission 2006a). Emissions of CO2 from other sources contributed 3.1 percent of the total GHG emissions; methane emissions contributed 6.4 percent; nitrous oxide emissions contributed 7.6 percent; and the remaining 3.2 percent was composed of emissions of high-GWP gases (California Energy Commission 2006a). These high GWP gases are largely

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*Supra no. 4.*
composed of refrigerants, with small contributions of SF6 used in connection with insulating materials for electricity transmission and distribution.

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 4.2-2, Annual GHG Emissions in California, provides a summary of GHG emissions reported in California in 1990 and 2006 separated by categories defined by the United Nations Intergovernmental Panel on Climate Change (IPCC).

Between 1990 and 2008, the population of California grew by approximately 8.1 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 (California Energy Commission 2006a).

Table 4.2-2
Annual GHG Emissions in California

<table>
<thead>
<tr>
<th>Source Category</th>
<th>1990 (MMTCO2e)</th>
<th>Percent of Total</th>
<th>2008 (MMTCO2e)</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ENERGY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy Industries</td>
<td>157.33</td>
<td>36.3%</td>
<td>171.23</td>
<td>35.8%</td>
</tr>
<tr>
<td>Manufacturing Industries &amp; Construction</td>
<td>24.24</td>
<td>5.6%</td>
<td>16.67</td>
<td>3.5%</td>
</tr>
<tr>
<td>Transport</td>
<td>150.02</td>
<td>34.6%</td>
<td>173.94</td>
<td>36.4%</td>
</tr>
<tr>
<td>Other (Residential/Commercial/Institutional)</td>
<td>48.19</td>
<td>11.1%</td>
<td>46.59</td>
<td>9.8%</td>
</tr>
<tr>
<td>Non-Specified</td>
<td>1.38</td>
<td>0.3%</td>
<td>0.00</td>
<td>0.0%</td>
</tr>
<tr>
<td>Fugitive Emissions from Oil &amp; Natural Gas</td>
<td>2.94</td>
<td>0.7%</td>
<td>3.28</td>
<td>0.7%</td>
</tr>
<tr>
<td>Fugitive Emissions from Other Energy Production</td>
<td>2.31</td>
<td>0.5%</td>
<td>2.09</td>
<td>0.4%</td>
</tr>
<tr>
<td><strong>INDUSTRIAL PROCESSES &amp; PRODUCT USE</strong></td>
<td>18.34</td>
<td>4.2%</td>
<td>30.11</td>
<td>6.3%</td>
</tr>
<tr>
<td>Mineral Industry</td>
<td>4.85</td>
<td>1.1%</td>
<td>5.35</td>
<td>1.1%</td>
</tr>
<tr>
<td>Chemical Industry</td>
<td>2.34</td>
<td>0.5%</td>
<td>0.06</td>
<td>0.0%</td>
</tr>
<tr>
<td>Non-Energy Products from Fuels &amp; Solvent Use</td>
<td>2.29</td>
<td>0.5%</td>
<td>1.97</td>
<td>0.4%</td>
</tr>
<tr>
<td>Electronics Industry</td>
<td>0.59</td>
<td>0.1%</td>
<td>0.80</td>
<td>0.2%</td>
</tr>
<tr>
<td>Substitutes for Ozone Depleting Substances</td>
<td>0.04</td>
<td>0.0%</td>
<td>13.89</td>
<td>2.9%</td>
</tr>
<tr>
<td>Other Product Manufacture and Use</td>
<td>3.18</td>
<td>0.7%</td>
<td>1.66</td>
<td>0.3%</td>
</tr>
<tr>
<td>Other</td>
<td>5.05</td>
<td>1.2%</td>
<td>6.39</td>
<td>1.3%</td>
</tr>
<tr>
<td><strong>AGRICULTURE, FORESTRY, &amp; OTHER LAND USE</strong></td>
<td>19.11</td>
<td>4.4%</td>
<td>24.42</td>
<td>5.1%</td>
</tr>
<tr>
<td>Livestock</td>
<td>11.67</td>
<td>2.7%</td>
<td>16.28</td>
<td>3.4%</td>
</tr>
<tr>
<td>Land</td>
<td>0.19</td>
<td>0.0%</td>
<td>0.19</td>
<td>0.0%</td>
</tr>
<tr>
<td>Aggregate Sources &amp; Non-CO2: Sources on Land</td>
<td>7.26</td>
<td>1.7%</td>
<td>7.95</td>
<td>1.7%</td>
</tr>
<tr>
<td><strong>WASTE</strong></td>
<td>9.42</td>
<td>2.2%</td>
<td>9.41</td>
<td>2.0%</td>
</tr>
</tbody>
</table>
### EMISSIONS SUMMARY

<table>
<thead>
<tr>
<th>Source Category</th>
<th>1990 (MMTCO₂e)</th>
<th>Percent of Total</th>
<th>2008 (MMTCO₂e)</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid Waste Disposal</td>
<td>6.26</td>
<td>1.4%</td>
<td>6.71</td>
<td>1.4%</td>
</tr>
<tr>
<td>Wastewater Treatment &amp; Discharge</td>
<td>3.17</td>
<td>0.7%</td>
<td>2.70</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

**Sources:**

### 4.4.2 Regulatory Considerations

**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 2007.11 In its 2007 report, the IPCC stated that global temperature increases since the mid-20th century were “very likely” attributable to man-made activities (greater than 90 percent certainty) (IPCC 2007).

**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 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 CO2 per mile and 30.1 miles per gallon. By 2016, the vehicles would have to meet an average standard of 250 grams of CO2 per mile and 35.5 miles per gallon. 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.

**STATE**

Key state laws and regulations related to GHG emissions are described below. Additional assembly bills as well as non-regulatory advisory activities are summarized in Appendix C.

**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. Some of the agency representatives involved in the GHG reduction plan include the Secretary of the Business, Transportation and Housing Agency, the Secretary of the Department of Food and Agriculture, the Secretary of the Resources Agency, the Chairperson of CARB, the Chairperson of the CEC, and the President of the Public Utilities Commission.

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The CO2 emission standards and fuel economy standards stated are based on U.S. EPA formulas.
Representatives from each of the aforementioned 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. The Climate Action Team has fulfilled both of these report requirements through its March 2006 Climate Action Team Report to Governor Schwarzenegger and the Legislature (2006 CAT Report) (Cal EPA 2006). 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. The Climate Action Team also recommends future emission reduction strategies, such as using only low-GWP refrigerants in new vehicles, developing ethanol as an alternative fuel, reforestation, solar power initiatives for homes and businesses, and investor-owned utility energy efficiency programs. According to the report, implementation of current and future emission reduction strategies have the potential to achieve the goals set forth in Executive Order S-3-05.

**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 an additional six early action GHG reduction measures under AB 32. CARB has adopted regulations for all early action measures. The early-action measures are divided into three categories:

- **Group 1** – GHG rules for immediate adoption and implementation

- **Group 2** – Several additional GHG measures under development

- **Group 3** – Air pollution controls with potential climate co-benefits

The original three adopted early action regulations meeting the narrow legal definition of “discrete early action GHG reduction measures” include:

- A low-carbon fuel standard to reduce the “carbon intensity” of California fuels;

- Reduction of refrigerant losses from motor vehicle air conditioning system maintenance to restrict the sale of “do-it-yourself” automotive refrigerants; and

- Increased methane capture from landfills to require broader use of state-of-the-art methane capture technologies.

The additional six early action regulations adopted on October 25, 2007, also meeting the narrow legal definition of “discrete early action GHG reduction measures,” include:
• Reduction of aerodynamic drag, and thereby fuel consumption, from existing trucks and trailers through retrofit technology;

• Reduction of auxiliary engine emissions of docked ships by requiring port electrification;

• Reduction of perfluorocarbons from the semiconductor industry;

• Reduction of propellants in consumer products (e.g., aerosols, tire inflators, and dust removal products);

• The requirement that all tune-up, smog check and oil change mechanics ensure proper tire inflation as part of overall service in order to maintain fuel efficiency; and

• Restriction on the use of sulfur hexafluoride (SF6) from non-electricity sectors if viable alternatives are available.

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 MMTCO2e. 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 MMTCO2e. 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 4.2-2, 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, however.

CARB Mandatory Reporting Requirements

In addition to the 1990 emissions inventory, CARB also adopted regulations requiring the mandatory reporting of GHG emissions for large facilities on December 6, 2007. The mandatory reporting regulations require annual reporting from the largest facilities in the state, which account for approximately 94 percent of point source greenhouse gas emissions from industrial and commercial stationary sources in California. About 800 separate sources fall under the new reporting rules and include electricity-generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and industrial sources that emit over 25,000 tons of carbon dioxide each year from on-site stationary combustion sources. Transportation sources, which account for 38 percent of California’s total greenhouse gas emissions, are not covered by these regulations but will continue to be tracked through existing means. Affected facilities will begin tracking their emissions in 2008, to be reported beginning in 2009, with a phase-in process to allow facilities to develop reporting systems and train personnel in data collection. Emissions for 2008 may be based on best available emission data. Beginning in 2010, however, emissions reporting requirements will be more rigorous and will be subject to third-party verification. Verification will take place annually or every three years, depending on the type of facility.
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 emissions 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 whereas the 2020 emissions limit will still be achieved even in the event that uncapped sectors do not fully meet their anticipated emissions 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.

Table 4.2-3, AB 32 Scoping Plan Measures (SPMs), lists CARB’s preliminary recommendations for achieving greenhouse gas reductions under AB 32 along with a brief description of the requirements and applicability.
Table 4.2-3
AB 32 Scoping Plan Measures (SPMs)

<table>
<thead>
<tr>
<th>Scoping Plan Measure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPM-1: California Cap-and-Trade Program linked to Western Climate Initiative</td>
<td>Implement a broad-based cap-and-trade program that links with other Western Climate Initiative Partner programs to create a regional market system. Ensure California’s program meets all applicable AB 32 requirements for market-based mechanisms. Capped sectors include transportation, electricity, natural gas, and industry. Projected 2020 business-as-usual emissions are estimated at 512 MTCO2e; preliminary 2020 emissions limit under cap-and-trade program are estimated at 365 MTCO2e (29 percent reduction).</td>
</tr>
<tr>
<td>SPM-2: California Light-Duty Vehicle GHG Standards</td>
<td>Implement adopted Pavley standards and planned second phase of the program. AB 32 states that if the Pavley standards (AB 1493) do not remain in effect, CARB shall implement equivalent or greater alternative regulations to control mobile sources.</td>
</tr>
<tr>
<td>SPM-3: Energy Efficiency</td>
<td>Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts. The Scoping Plan considers green building standards as a framework to achieve reductions in other sectors, such as electricity.</td>
</tr>
<tr>
<td>SPM-4: Renewables Portfolio Standard</td>
<td>Achieve 33 percent Renewables Portfolio Standard by both investor-owned and publicly owned utilities.</td>
</tr>
<tr>
<td>SPM-5: Low Carbon Fuel Standard</td>
<td>CARB identified the Low Carbon Fuel Standard as a Discrete Early Action item and the final regulation was adopted on April 23, 2009. In January 2007, Governor Schwarzenegger issued Executive Order S-1-07, which called for the reduction of the carbon intensity of California’s transportation fuels by at least 10 percent by 2020.</td>
</tr>
<tr>
<td>SPM-6: Regional Transportation-Related Greenhouse Gas Targets</td>
<td>Develop regional greenhouse gas emissions reduction targets for passenger vehicles. SB 375 requires CARB to develop, in consultation with metropolitan planning organizations (MPOs), passenger vehicle greenhouse gas emissions reduction targets for 2020 and 2035 by September 30, 2010. SB 375 requires MPOs to prepare a sustainable communities strategy to reach the regional target provided by CARB.</td>
</tr>
<tr>
<td>SPM-7: Vehicle Efficiency Measures</td>
<td>Implement light-duty vehicle efficiency measures. CARB is pursuing fuel-efficient tire standards and measures to ensure properly inflated tires during vehicle servicing.</td>
</tr>
<tr>
<td>SPM-8: Goods Movement</td>
<td>Implement adopted regulations for port drayage trucks and the use of shore power for ships at berth. Improve efficiency in goods movement operations.</td>
</tr>
<tr>
<td>SPM-9: Million Solar Roofs Program</td>
<td>Install 3,000 MW of solar-electric capacity under California’s existing solar programs.</td>
</tr>
<tr>
<td>SPM-10: Heavy/Medium-Duty Vehicles</td>
<td>Adopt heavy- and medium-duty vehicle and engine measures targeting aerodynamic efficiency, vehicle hybridization, and engine efficiency.</td>
</tr>
<tr>
<td>SPM-11: Industrial Emissions</td>
<td>Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.</td>
</tr>
</tbody>
</table>
### Scoping Plan Measure

<table>
<thead>
<tr>
<th>Scoping Plan Measure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SPM-12: High Speed Rail</strong></td>
<td>Support implementation of a high-speed rail (HSR) system. This measure supports implementation of plans to construct and operate a HSR system between Northern and Southern California serving major metropolitan centers.</td>
</tr>
<tr>
<td><strong>SPM-13: Green Building Strategy</strong></td>
<td>Expand the use of green building practices to reduce the carbon footprint of California’s new and existing inventory of buildings.</td>
</tr>
<tr>
<td><strong>SPM-14: High GWP Gases</strong></td>
<td>Adopt measures to reduce high global warming potential gases. The Scoping Plan contains 6 measures to reduce high-GWP gases from mobile sources, consumer products, stationary sources, and semiconductor manufacturing.</td>
</tr>
<tr>
<td><strong>SPM-16: Sustainable Forests</strong></td>
<td>Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation. The federal government and California’s Board of Forestry and Fire Protection have the regulatory authority to implement the Forest Practice Act to provide for sustainable management practices. This measure is expected to play a greater role in the 2050 goals.</td>
</tr>
<tr>
<td><strong>SPM-17: Water</strong></td>
<td>Continue efficiency programs and use cleaner energy sources to move water. California will also establish a public goods charge for funding investments in water efficiency that will lead to as yet undetermined reductions in greenhouse gases.</td>
</tr>
<tr>
<td><strong>SPM-18: Agriculture</strong></td>
<td>In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020. Increase efficiency and encourage use of agricultural biomass for sustainable energy production. CARB has begun research on nitrogen fertilizers and will explore opportunities for emission reductions.</td>
</tr>
</tbody>
</table>


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### Senate Bill 97 (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

**Senate Bill 375**
The California legislature passed SB 375 (Steinberg) on September 1, 2008. SB 375 requires CARB to set regional greenhouse gas reduction targets after consultation with local governments. 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. SB 375 also requires each region’s regional housing needs assessment (RHNA) to be adjusted based on the Sustainable Communities Strategy in its RTP. Additionally, SB 375 reforms the environmental review process to create incentives to implement the strategy, especially transit priority projects. The governor signed SB 375 into law on September 30, 2008. CARB is not expected to issue regional GHG reduction targets to local governments until the latter half of 2010.

**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). It is anticipated the this update to Part 11 of the Title 24 Building Standards Code will be 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.

**Regional Programs**
In July 2007, the Yolo-Solano Air Quality Management District (YSAQMD) adopted the Handbook for Assessing and Mitigating Air Quality Impacts (CEQA Handbook). The CEQA Handbook does not provide any quantitative thresholds for assessing greenhouse gas emissions, but does state that greenhouse gas emissions are an area of concern in environmental documents. The CEQA Handbook recommends that at least a qualitative assessment is made, noting that vehicle trips represent a particular area of concern.

**Local Plans and Policies**
**University of California Policy on Sustainable Practices**
The University of California Policy on Sustainable Practices was adopted by The Regents in 2006 and revised in March 2007, March 2008, 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. 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 Davis 2003 Long Range Development Plan
The 2003 LRDP is the plan for the development of the campus. Although the 2003 LRDP does not contain policies that specifically address GHG emissions, it does contain a number of elements with respect to fuel- and energy-efficiency provisions and elements that would encourage walking and bicycling on campus and in surrounding neighborhoods, all of which would reduce GHG emissions.

UC Davis 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 Davis has prepared the 2009-2010 Climate Action Plan (CAP), which includes both the Davis and Sacramento campuses, as well as outlying facilities. The CAP describes and addresses policy and regulatory requirements of (1) the UC Policy on Sustainable Practices, (2) AB 32, (3) the American College and University Presidents Climate Commitment, (4) CEQA, and (4) U.S. EPA reporting requirements. The CAP provides documentation of how campus GHG emissions are calculated, a report of current (2008) emissions, estimates of past (to 1990) and future emissions (to 2020), a statement of GHG emission reduction goals, a characterization of options and methods to reduce emissions, and a blueprint for future action.

The CAP focuses on the 2014 and 2020 targets, with the understanding that climate neutrality will require fundamental shifts in global and national energy policy, energy production, and technologies currently using fossil fuels. Further, the CAP focuses on emissions related to campus operations, instead of commuting and air travel, because emissions related to commuting and air travel are less than one-quarter those of campus operations. The CAP does provide analysis of commuting and air travel reduction options, but does not quantify emissions reductions for those options.

In the CAP, GHG emissions were calculated back to 1990, using hard data whenever possible (and projected data when not), and including nearly every source of emissions. Calculated emissions for all of UC Davis, excluding commuting and air travel, for 2000 are 246,000 MTCO2e and for 1990 are 142,000 MTCO2e. In 2008, inventoried emissions (in CCAR), excluding commuting and air travel, totaled 238,000, indicating that UC Davis had already met the 2014 target. Thus, the CAP defined a new emissions target of 210,000 MTCO2e, almost 15 percent below the 2000 emissions, as the new 2014 target. The 2020 target, to reach 1990 emissions, is about 40 percent below the 1990 emissions.

Four years of verified inventories of emissions have shown consistently that the Davis campus contributes about 70 percent of the emissions total, the Sacramento campus contributes about 29 percent of the total, and the outlying facilities contribute about 1 percent of the total.

4.4.3 Standards of Significance
In accordance with Senate Bill (SB) 97, the Natural Resources Agency adopted amendments to the State CEQA Guidelines on December 30, 2009, which includes criteria for evaluating GHG emissions. According to the amended Appendix G of the State CEQA Guidelines, a project would have a significant effect on the environment if it would:

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13 The adopted amendments may be viewed at the following Web site: http://ceres.ca.gov/ceqa/guidelines/. 2009.
• 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.

The amended State CEQA Guidelines include a new Section 15064.4, which states that, when making a determination of the significance of GHG emissions, a lead agency shall have discretion to determine whether to (1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use; and/or (2) Rely on a qualitative analysis or performance based standards. Section 15064.4 also provides that a lead agency may consider the following factors when assessing the significance of GHG emissions on the environment: (1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting; (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.

Under CEQA, “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.”14 CEQA grants agencies with the general authority to adopt criteria for determining whether a given impact is “significant.”15 When no guidance exists under CEQA, the agency may look to and assess general compliance with comparable regulatory schemes.

The first Appendix G criterion listed above may be evaluated by performing a direct calculation of the GHG emissions from the project. As of the time that this EIR was prepared, the University of California, Davis has not yet adopted project-level significance thresholds for GHG emissions relevant to the proposed project. While the project site is located in the YSAQMD, as noted above, the YSAQMD’s CEQA Handbook does not provide any quantitative thresholds for assessing greenhouse gas emissions. Several air quality management and air pollution control districts in California, including the Sacramento Metropolitan Air Quality Management District (SMAQMD), San Joaquin Valley APCD, and the Bay Area Air Quality Management District (BAAQMD), have adopted guidance documents for evaluating the significance of GHG emissions under CEQA. Other districts have published draft guidance documents that have not yet been formally adopted. The California Air Pollution Control Officers Association (CAPCOA) published a white paper in January 2008 examining approaches for air districts to assess GHG emissions under CEQA. (CAPCOA 2008) Three potential thresholds that could be used to evaluate the project’s emissions include the following:

• Apply the most stringent, recommended non-zero threshold of 900 MTCO2e, which the CAPCOA identified in its white paper and estimated to capture at least 90% of all industrial projects.

• Apply SMAQMD-adopted guidance recommending that project achieve an approximately 30 percent reduction from “business as usual” (BAU) conditions (SMAQMD 2009).

• Apply BAAQMD-adopted thresholds for projects other than stationary sources on both a total emissions basis and a performance basis. The threshold for total emissions is 1,100 MTCO2e per year; the performance-based threshold is 4.6 MTCO2e per service population (employees plus residents) per year (BAAQMD 2010).

14 State CEQA Guidelines Section 15064(b).
The analysis in this EIR utilizes the numeric threshold in the CAPCOA white paper in determining the significance of the project’s estimated emissions. The threshold has no regulatory authority unless adopted by an air district. Therefore, although this threshold is not binding on the project as regulatory authority, it is intended as a reasonably conservative reference point for the analysis of project impacts in the absence of directly applicable quantitative thresholds.

The SMAQMD guidance does not provide a quantitative threshold, but recommends that the project be analyzed with respect to AB 32 goals, specifically a reduction in GHG emissions to 1990 levels by 2020, or approximately a 30% reduction from business as usual (BAU). As stated in the SMAQMD CEQA guidance, GHG emissions impacts are believed by the SMAQMD to be better analyzed and mitigated at the program level. The UC Davis CAP requires that the campus as a whole reduce its GHG emissions by 30% in 2020 compared to its 1990 baseline, which is consistent with the State's goal under AB 32. Similar to AB 32, the UC Davis CAP does not plan to require that individual projects meet a 30% reduction target, only that the campus as a whole meet the target (AB 32 requires the State as a whole to reduce emissions by 30%, not individual sectors). Since the project is included in the CAP and the CAP will allow UC Davis to meet its AB 32 requirements (i.e., 30% reduction), the project will not hinder UC Davis from meeting AB 32 goals overall. Therefore, while the project itself may not achieve a 30% reduction due to limited opportunities for reductions, the project would comply with the applicable CAP requirements and the campus as a whole would meet the reduction target recommended by the SMAQMD.

Although the BAAQMD thresholds provide explicit numerical values, these values are based on projected increases in GHG emissions using growth data related to residential and commercial development specific to the Bay Area. Furthermore, the BAAQMD thresholds are based on residential and commercial developments, and are not directly applicable to other types of projects such as research laboratories because research laboratories would have different emission characteristics than residential or commercial developments. Since the proposed project is outside the Bay Area and not one of the types of project included in calculation of the thresholds, the BAAQMD thresholds should only be seen as general guidance for assessing significance.

The second Appendix G criterion, requiring a determination of whether the project will conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases, may be evaluated by demonstrating compliance with plans, policies, or regulations adopted by local governments to curb GHG emissions. According to the Natural Resources Agency:

> Provided that such plans contain specific requirements with respect to resources that are within the agency’s jurisdiction to avoid or substantially lessen the agency’s contributions to GHG emissions, both from its own projects and from private projects it has approved or will approve, such plans may be appropriately relied on in a cumulative impacts analysis (California Natural Resources Agency 2009).

The University’s Policy on Sustainable Practices and the UC Davis CAP are the relevant plans with which to review compliance. As noted above, the CAP describes and incorporates GHG emission reduction goals, a characterization of options and methods to reduce emissions, and a blueprint for future action and addresses implementation of the UC Policy on Sustainable Practices, which states that the University will voluntarily meet the goal of AB 32 to reduce GHG emissions to 1990 levels by 2020.
4.4.4 Methodology

The amendments to the State CEQA Guidelines that were adopted by the Natural Resources Agency recommend that lead agencies provide for a “good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project.” In addition, OPR has stated that, under CEQA, the following steps should be considered when assessing the significance of impacts from GHG emissions on the environment:

1. Identify and quantify the GHG emissions.
2. Assess the significance of the impact on climate change.
3. If significant, identify alternatives and/or mitigation measures that will reduce impacts below significance (OPR 2008).

The analysis of the project is consistent with the recommendations by the Natural Resources Agency and OPR. Sources consulted for this analysis include the U.S. EPA, the U.S. Energy Information Administration, the California Energy Commission, the California Climate Action Registry, and other GHG and global climate change data, as referenced.

4.4.5 GHG Reduction Measures Already Incorporated in the UC Policy on Sustainable Practices and UC Davis CAP

The UC Policy on Sustainable Practices requires campuses to minimize the University of California’s impact on the environment and reduce the University’s dependence on non-renewable energy sources. As a result, the proposed project is required to incorporate the following GHG reduction measures in its design to reduce potential greenhouse gas impacts. Table 4.2-4, GHG Reduction Measures Incorporated in the University of California Policy on Sustainable Practices and the UCD CAP, lists the GHG reduction measures that are incorporated in the proposed project design and would be required to be implemented during implementation of the proposed project.
### Table 4.2-4
GHG Reduction Measures Incorporated in the UC Policy on Sustainable Practices and UC Davis CAP

<table>
<thead>
<tr>
<th>GHG Reduction Measure</th>
<th>Description</th>
</tr>
</thead>
</table>
| UC Policy on Sustainable Practices: Green Building Design Standards | UC Davis shall implement green building design standards for all new construction in accordance with the UC Policy on Sustainable Practices:  
- New building projects, other than acute-care facilities, shall outperform the required provisions of the California Energy Code (Title 24) energy-efficiency standards by at least 20 percent (UC Davis campus has a campus policy to outperform Title 24 by 25 percent).  
- New building projects, other than acute-care facilities, shall outperform the required provisions of the California Energy Code (Title 24) energy-efficiency standards by 30 percent or more, whenever possible within the constraints of program needs and standard budget parameters.  
- New building projects, except laboratory and acute care facilities, shall be certified to a minimum standard equivalent to a LEED™-NC “Silver” rating according to the version of LEED™-NC that is current at the time of design approval.  
- New building projects, except laboratory and acute care facilities, shall be certified to a minimum standard equivalent to a Leadership in Energy and Environmental Design (LEED™) “Gold” rating for new construction (NC), whenever possible within the constraints of program needs and standard budget parameters, according to the version of LEED™-NC that is current at the time of design approval.  
- New laboratory building projects shall be certified to a minimum standard equivalent to a LEED™-NC “Silver” rating and the Laboratories for the 21st Century (Labs21) Environmental Performance Criteria (EPC), as appropriate. The design process will include attention to energy efficiency for systems not addressed by the California Energy Code (Title 24).  
- New building projects shall achieve at least two of the available credits in the LEED™-NC Water Efficiency category and shall cooperate with local water district in efforts to conserve water and to meet reduced water use goals of the local district. |
| UC Policy on Sustainable Practices: Environmentally Preferable Purchasing Practices | UC Davis shall implement environmentally preferable purchasing practices for all new construction in accordance with the UC Policy on Sustainable Practices and the UC Davis CAP:  
- New building projects shall procure only products with an ENERGY STAR® rating for product categories that have ENERGY STAR® rated products available, consistent with the needs of UC Davis researchers.  
- New building projects shall require that suppliers ensure that all electronic equipment and items delivered to the project site enable all energy efficiency and conservation features, if the option exists and is consistent with the needs of the project.  
- New building projects shall give preference to technologies that ensure the efficient use of water resources for all products and services that require the use of water (e.g., low-flow water fixtures, water efficient irrigation, etc.). |
<table>
<thead>
<tr>
<th>GHG Reduction Measure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UC Policy on Sustainable Practices: Transportation Reduction Measures</td>
<td>UC Davis shall implement transportation reduction measures in accordance with the UC Policy on Sustainable Practices and the UC Davis CAP:</td>
</tr>
<tr>
<td></td>
<td>• For all campus-owned fleet vehicles, old equipment scheduled for retirement shall be preferentially replaced with fuel efficient, low emission vehicles (LEV), zero-emission vehicles (ZEV), and/or alternative-fueled vehicles consistent with the needs of the campus.</td>
</tr>
<tr>
<td></td>
<td>• UC Davis shall investigate ways to expand or further improve upon the Green Light Commuter Club by providing additional alternative transportation options and incentives, and shall educate students, staff, faculty, and visitors about the program.</td>
</tr>
<tr>
<td></td>
<td>• UC Davis shall implement campus-wide policies and programs for reducing vehicle and flight miles traveled through teleconferencing, telecommuting, and telemedicine and shall educate students, staff, faculty, and visitors about these policies and programs.</td>
</tr>
<tr>
<td></td>
<td>• UC Davis shall pursue the expansion of Transportation Demand Management (TDM) programs and projects to reduce the environmental impacts from commuting. TDM programs may include: carshare, carpools (rideshare), vanpools, buspools, campus shuttles, transit, bicycle circulation system, pedestrian circulation system, emergency rides home, telecommuting, flexible schedules, parking management (amount, access, fees), etc. In conjunction with this effort, campuses will engage in advocacy efforts with local transit districts to improve routes in order to better serve student and staff ridership. UC Davis shall educate students, staff, faculty, and visitors about TDM programs.</td>
</tr>
<tr>
<td>UC Policy on Sustainable Practices: Waste Reduction</td>
<td>UC Davis shall implement further waste reduction and recycling actions to reduce overall contributions to the campus landfill. Waste reduction and recycling actions shall include new purchasing requirements to increase recycled content in consumable materials and improved requirements for purchasing recyclable materials where possible.</td>
</tr>
</tbody>
</table>


4.4.6 Project Impacts and Mitigation Measures

Impacts Adequately Analyzed in the 2003 LRDP EIR or Not Applicable to the Project

The Initial Study for the proposed project stated that the proposed project incorporates all of the goals contained in the UC Policy on Sustainable Practices. However, development of the project could result in increases in GHG emissions from stationary, area, and mobile sources. The Initial Study deferred analysis of the project’s climate change impacts to the Draft EIR.
PROJECT LEVEL IMPACTS

Impact GHG-I: The proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. (Less than Significant)

The UC Davis 2009–2010 CAP addresses implementation of the UC Policy on Sustainable Practices, which states that the University will voluntarily meet the goal of AB 32 to reduce GHG emissions to 1990 levels by 2020. The Campus is also proposing to reduce its GHG emissions to 2000 levels by 2014. The emissions reported in the CAP are separated into three groups:

- Scope 1 emissions include direct emissions from campus-owned vehicles, area and stationary combustion sources, fugitive emissions (e.g., refrigerant loses, research gases, fume hood testing, electrical switches, fire extinguishers, landfill gases, and distribution losses in natural gas lines), and agricultural emissions including animals that emit methane and soil treatments that emit CO2 and N2O;

- Scope 2 emissions include indirect emissions related to the production and consumption of electricity; and

- Scope 3 emissions include all other indirect emissions from commuting, air travel, reimbursed car miles traveled for business purposes, air travel for business purposes (such as to conferences, meetings, research sites, etc.), and student air travel related to study abroad and athletics. Construction emissions may also be included as Scope 3.

The CAP focuses on emissions from Scopes 1 and 2. The Campus does not report Scope 3 emissions in the verified inventories conducted annually since 2006, as these emissions are not requested by the greenhouse gas inventory registry that UC campuses use.

The CAP established the 1990 emissions level for the Davis campus at 120,991 MTCO2e for Scopes 1 and 2 emission sources. Scope 3 emissions from commuting associated with the Davis campus totaled 21,171 MTCO2e in 1990. Emissions from other Scope 3 sources are also captured in the CAP’s Scope 1 and 2 emissions. The CAP emissions include water consumption (emissions from the electricity used to pump groundwater, which is the campus water source), wastewater (emissions from electricity used to pump wastewater and emissions for the WWTP), and landscaping equipment (which are captured in the campus’ Fleet and mobile source combustion calculations). Solid waste generation emissions are indirectly captured in two ways: (1) through the Fleet trucks that haul garbage to the campus landfill, and (2) through the landfill gas captured in direct (Scope 1) emissions. The total 1990 emissions for all scopes are estimated at 142,162 MTCO2e, 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 for the Davis campus at 156,403 MTCO2e for Scopes 1 and 2 emission sources. Scope 3 emissions from commuting associated with the Davis Campus totaled 21,783 MTCO2e in 2000. Emissions for other Scope 3 sources are also captured in the estimates of Scope 1 and 2 emissions in the manner noted above. The total 2000 emissions are estimated at 178,186 MTCO2e, which represents the target for 2014 GHG emissions under the CAP.
Construction Emissions
During construction, the proposed project would directly contribute to climate change through its contribution of the GHG emissions from the exhaust of construction equipment and construction workers’ vehicles. The manufacture of construction materials used by the project would 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 this project, 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 a lack of data precludes their quantification without speculation.

The primary GHG emissions during construction are CO₂, CH₄, and N₂O. 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 project. The URBEMIS2007 Environmental Management Software was used to estimate the construction-related CO₂ emissions using the same assumptions described in Section 4.1, Air Quality, for the construction portion of the air quality analysis. Because detailed information regarding construction phasing and scheduling was not available, default scheduling within URBEMIS2007 was assumed for grading, building construction, asphalt paving, and architectural coating activities. URBEMIS2007 only calculates CO₂ emissions and does not provide estimates of other GHGs associated with combustion (i.e., CH₄ and N₂O). Therefore, in order to account for emissions of these compounds, the following adjustments were made to the URBEMIS2007 emission calculations to convert CO₂ emissions to a CO₂e basis:

- **Construction Off-Road and On-Road Equipment.** The CO₂ emissions associated with off-road and on-road equipment were multiplied by a factor based on the assumption that CO₂ represents approximately 99.1 and 99.9 percent, respectively, of the CO₂e emissions. These assumptions were derived from the California Climate Action Registry (California Climate Action Registry 2009) and the California Energy Commission (California Energy Commission 2002).

- **Motor Vehicles (Workers).** The CO₂ emissions associated with construction-related worker trips were multiplied by a factor based on the assumption that CO₂ represents 95 percent of the CO₂e emissions associated with passenger vehicles, which account for most of the project-related trips (U.S. EPA 2005). The 95 percent factor accounts for CH₄, N₂O and fugitive GHG emissions associated with mobile source air conditioning equipment.

Construction GHG emissions would occur only during construction activities. It is common practice to amortize construction-related GHG emissions over the project’s lifetime in order to include these emissions as part of a project’s amortized lifetime total emissions so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies. The SMAQMD’s CEQA Guide recommends using 25 years for conventional commercial buildings as a project lifetime (SMAQMD 2009). Therefore, the construction GHG emissions were amortized over a 25-year period and included in the project’s total annual emissions discussed in the next section.

Operational Emissions
Existing GHG Emissions
The RDC will be constructed on land that is currently vacant. While a portion of the activities and staff associated with the building will be merely transferring from other locations on the campus, there are no data available to calculate the current emissions from these activities. Additionally, at least some of the building space vacated by the move of existing UC Davis researchers to the RDC will continue to be
utilized by the Campus. Therefore, the RDC is considered an entirely new source of emissions for the purposes of this assessment, with the understanding that this is likely a conservative assumption. However, only the additional new staff associated with the RDC will be included in the assessment under the assumption that staff transferring from other locations on the campus will have no net change in their GHG emissions. Under this set of assumptions, the existing baseline GHG emissions from the RDC are zero.

**RDC Scope 1 Emissions**

Once occupied, the RDC would generate direct operational emissions of GHGs. These emissions—primarily CO$_2$, CH$_4$, and N$_2$O—would be the result of fuel combustion from building heating systems and campus-owned motor vehicles. Building and motor vehicle refrigeration and air conditioning systems may use HFCs (and HCFCs and CFCs to the extent that they have not been completely phased out) and may result in additional fugitive GHG emissions through leaks.

The proposed project’s GHG emissions were calculated based on building design data. The RDC would house stationary sources, which include an emergency generator and two boilers. One 600-kilowatt emergency generator would be installed, and would act as an energy supply in the event of an electricity outage in the area. Emissions of GHGs associated with the emergency generator were calculated using emission factors contained in the U.S. EPA’s AP-42 Compilation of Air Pollutant Emission Factors (U.S. EPA 1996). The generator is assumed to operate 50 hours per year in line with air district requirements. The project design includes two 1.5 million British thermal unit per hour (MMBtu/hr) boilers to provide steam, with only one boiler operating at any time and the second on standby. The GHG emissions from the boilers were also calculated using emission factors contained in AP 42 (U.S. EPA 1998; U.S. EPA 2000).

Campus-owned mobile combustion sources would result in emissions of CO$_2$, CH$_4$, and N$_2$O. These emissions are the result of fossil fuel combustion. However, there are no campus-owned vehicles associated with this project, and no additions to the campus fleet planned to service this building specifically. Therefore there are no Scope 1 GHG emissions from vehicles for this project.

Fugitive GHG emissions would result from the leakage of high-GWP gases from refrigeration and air conditioning equipment and leakage from natural gas distribution and fume hood testing. Estimating these fugitive emissions carries a high degree of uncertainty because they largely occur through accidental leaks or unexpected damage to the equipment. In addition, refrigeration and air conditioning equipment may use a wide variety of HFCs, or mixtures of several different HFCs, all of which have GWP values that range from 140 to 6,300. There are currently no data for refrigerant use or other potential fugitive emissions at the RDC, but these emissions are typically very small for buildings of this type, especially as there is no campus-owned fleet associated with the building. Consequently, fugitive emissions are not included in this assessment.

**RDC Scope 2 Emissions**

The proposed project would also result in indirect GHG emissions from electricity consumption. The Davis campus purchases nearly all of its electricity from a variety of suppliers, including the Western Area Power Administration (WAPA), Pacific Gas & Electric (PG&E), Arizona Power Supply, Sempra, and others. Indirect (Scope 2) emissions for the project were calculated based on the method used in annual, verified greenhouse gas inventories and in the UC Davis CAP. This method uses the e-GRID CAMX as a default emissions factor (EF) for the majority of campus power, which is supplied by WAPA.

For WAPA-provided power, the kilowatt-hours associated with large-scale hydropower (11% of the total) are subtracted before calculating remaining kilowatt-hours at the CAMX factor, per guidance from the
California Climate Action Registry. Large-scale hydropower is subtracted because it does not create appreciable greenhouse gas emissions during generation.

**RDC Scope 3 Emissions**
Scope 3 emissions from commuting were estimated based on the increase in campus population attributable to the RDC, which is projected to be 25 persons. Commute emissions for this project-related population increase were calculated using URBEMIS2007 using the same assumptions identified in Section 4.1, Air Quality. This includes a conservative assumption that each person will make four trips per day, for a total of 100 trips per day. In addition to commuting GHG emissions, construction GHG emissions would be considered part of Scope 3 emissions. As previously discussed, the construction emissions were also estimated using the URBEMIS2007 model. The total construction emissions averaged over 25 years. The amortized construction emissions are included as part of this category and are considered as part of the project’s overall operational GHG emissions as recommended by the SMAQMD’s CEQA Handbook. Other Scope 3 emissions were calculated using California Energy Commission emission factors.

**Summary of Operational Emissions**
A summary of the operational emissions at full operation of the RDC is provided below in Table 4.2-5, Annual RDC GHG Emissions. Detailed emission calculations are provided in Appendix C.

<table>
<thead>
<tr>
<th>Scope</th>
<th>Source</th>
<th>GHG Emissions (Metric Tons CO2e/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope 1</td>
<td>Stationary Combustion</td>
<td>414</td>
</tr>
<tr>
<td>Scope 2</td>
<td>Purchased Electricity</td>
<td>80</td>
</tr>
<tr>
<td>Scope 3</td>
<td>Mobile Combustion (Commuters)</td>
<td>185</td>
</tr>
<tr>
<td>Scope 3</td>
<td>Amortized Construction (25 years)</td>
<td>8</td>
</tr>
<tr>
<td>Other</td>
<td>Solid Waste</td>
<td>64</td>
</tr>
<tr>
<td>Other</td>
<td>Water</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>Wastewater</td>
<td>1</td>
</tr>
<tr>
<td>Total Annual GHG Emissions</td>
<td>754</td>
<td></td>
</tr>
</tbody>
</table>

Source: Impact Sciences, Inc. Emission calculations are provided in Appendix C. Note: Totals in table may not appear to add exactly due to rounding.

As shown, the estimated total annual GHG emissions from operation and construction of the project are 754 MTCO2e per year.

While neither the Campus nor the local air district has adopted a numeric threshold for evaluating the significance of a project’s GHG emissions, and none of the adopted numeric thresholds are applicable to the proposed project, this analysis compares the project’s estimated GHG emissions to the CAPCOA threshold of 900 MTCO2e which is the most stringent non-zero threshold proposed and more stringent than any guidelines actually adopted or proposed to date by California air districts. The project’s emissions are well below that number. As noted earlier, this threshold is merely one of several options investigated by CAPCOA for possible adoption by California air districts and does not represent an actual
adopted threshold – it is included only as a reference point in the absence of a quantitative threshold from the YSAQMD or the Campus.

Furthermore, the project will be developed in accordance with the UC Policy on Sustainable Practices as well as the UC Davis CAP. These policies were developed to enable the University to develop projects while achieving the necessary emissions reductions to meet AB 32 requirements. In developing this project, UC Davis will incorporate the GHG reduction measures described in Table 4.2-4 and as included in the UC Policy on Sustainable Practices and the UC Davis CAP to the extent feasible.

In addition, AB 32 is anticipated to secure emission reductions through a variety of mechanisms, such as increasing energy efficiency standards and the procurement of renewable energy. CARB has already begun to adopt strategies to reduce GHG emissions under AB 32 at the state level. Reductions in GHG emissions from these sources are expected to occur upon implementation of adopted and pending regulations for the following measures:

- SPM-2: California light-duty vehicle GHG standards (19.7 percent reduction in transportation GHG emissions);
- SPM-3: Energy efficiency standards for natural gas consumption (9.5 percent reduction in natural gas GHG emissions) and electricity consumption (15.7 percent reduction in electricity GHG emissions);
- SPM-4: Renewables Portfolio Standard (RPS) of 33 percent (21.0 percent reduction in electricity GHG emissions based on the average statewide RPS factor of 12 percent);
- SPM-5: Low carbon fuel standard (7.2 percent reduction in transportation GHG emissions);
- SPM-6: Regional transportation-related GHG targets (unknown percent reduction in transportation GHG emissions);
- SPM-7: Vehicle efficiency measures adopted for light-duty vehicles (2.8 percent reduction in transportation GHG emissions);
- SPM-9: Million solar roofs program (1.5 percent reduction in electricity GHG emissions from a statewide perspective; actual project reductions would be based on the actual amount of solar power incorporated into the project);
- SPM-10: Vehicle hybridization and energy efficiency standards adopted for medium- and heavy-duty vehicles (2.9 percent reduction in transportation GHG emissions).

Although the proposed project would be constructed and occupied before these measures take effect, some of the measures such as SPM-2, SPM-4, SPM-5, and SPM-7 would reduce future emissions from the RDC. As it is difficult to accurately quantify any reductions from these measures at this time, in the interest of presenting an accurate and conservative emissions estimate, these measures have not been considered in the estimated emissions reported in Table 4.2-2. However, potential reductions from the AB 32 measures are presented in Appendix C for informational purposes.

In summary, because of the low GHG emissions that would result from the project, the incorporation of GHG reduction measures in the proposed project to the extent feasible, and because of future reductions that would stem from state-level SPMs listed above, the project’s impact would be less than significant.
To entirely eliminate the project’s less than significant impact, the Campus will implement Mitigation Measure GHG-1.

**Mitigation Measure GHG-1:** Under the Strategic Energy Partnership Program,16 the Campus will fund energy-efficiency improvements in existing buildings on the campus that will achieve a minimum GHG emissions reduction of 755 MTCO2e per year, within two years of the occupancy of RDC.

**CUMULATIVE IMPACTS AND MITIGATION MEASURES**

**Impact GHG-2:** The proposed project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. *(Less than Significant)*

The project would make a cumulatively considerable contribution to global climate change impact if it were not consistent with an applicable plan, policy, or regulation concerning greenhouse gas reductions. Under Section 15064(h)(1) of the State CEQA Guidelines, a project must be assessed to determine if it would have a cumulatively considerable effect on a resource, where cumulatively considerable is defined as “… the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.”17 Section 15064(h)(4) further states, “The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project’s incremental effects are cumulatively considerable.” Therefore, the fact that the proposed project would result in emissions of GHGs (chiefly carbon dioxide), and that global GHGs emissions contribute to the greenhouse effect and the resultant impacts on global climate, does not necessarily mean that the project would have a cumulatively considerable impact on global climate.

The University’s Policy on Sustainable Practices and the UC Davis CAP are the relevant plans with which to review compliance. As noted above, the CAP describes and incorporates GHG emission reduction goals, a characterization of options and methods to reduce emissions, and a blueprint for future action and addresses implementation of the UC Policy on Sustainable Practices, which states that the University will voluntarily meet the goal of AB 32 to reduce GHG emissions to 1990 levels by 2020.

The implementation of the GHG reduction measures above would provide substantial savings in energy consumption as new building projects would be required to be certified to the LEED™-NC “Gold” or “Silver” standards. In addition, as explained in the UC Davis CAP, UC Davis anticipates that while the Davis campus accounts for nearly 70 percent of the total UC Davis GHG emissions it also has more options for reductions. The 2009–2010 CAP focuses on reduction options for the Davis campus, and implementation of the above GHG reduction measures would be consistent with the CAP recommendations regarding energy efficiency, renewable energy, transportation reductions, and waste diversion. Thus, the RDC, after the incorporation of the measures in Table 4.2-4, would be consistent with the UC Policy on Sustainable Practices and the UC Davis 2009–2010 CAP and would not prevent the University from achieving its overall GHG reduction goals. Furthermore, the Campus will implement

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16 **Strategic Energy Partnership Program** or SEPP is a program that the UC and investor-owned utilities have entered into whereby the utilities provide a certain amount of matching funds for energy efficiency and energy conservation initiatives that eligible UC campuses undertake. Actual savings in kWh and therms must be demonstrated to receive the matching funds. The Davis campus participates in the **SEPP**.

17 **California Code of Regulations** (CCR), Title 14, Division 6, Chapter 3, *California Environmental Quality Act Guidelines*, Section 15064.
Mitigation Measure GHG-1, which will reduce the project’s contribution to net zero. Therefore, the project would have no impact due to emissions of greenhouse gases

**Mitigation Measures:** No mitigation required.

### 4.4.7 References


California Environmental Protection Agency (Cal EPA), Climate Action Team. 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature.


U.S. Environmental Protection Agency (U.S. EPA). n.d.(a) “High GWP Gases and Climate Change,”

U.S. Environmental Protection Agency (U.S. EPA). n.d.(b) “Methane: Sources and Emissions,”

Impacts and Mitigation.
4.5 HAZARDS & HAZARDOUS MATERIALS

This section of the Focused Tiered Draft EIR analyzes the potential effects of the proposed UC Davis Respiratory Diseases Center project (RDC or “proposed project”) related to hazards and hazardous materials. The preparation of this Focused Tiered Draft EIR was preceded by the Tiered Initial Study for the RDC project which determined that potential project impacts associated with the use of hazardous chemicals and biohazardous materials, generation of chemical and biohazardous wastes, and risks associated with laboratory animals that would occur in the proposed building would be evaluated in an EIR. All other hazards and hazardous materials impacts and other environmental impacts are adequately addressed in the Tiered Initial Study (Appendix A) prepared for this project. All relevant background information from the 2003 LRDP EIR, including applicable environmental and regulatory setting standards of significance, and mitigation measures identified in Section 4.7 of the 2003 LRDP EIR, is incorporated by reference and summarized below as appropriate. Section 4.7 of the 2003 LRDP EIR is available in Volume I, pages 4.7-1 through 4.7-74 of the 2003 LRDP EIR and at: http://envplan.ucdavis.edu/long-range-plan/documents/lrdpeir/4.07_hazmat.pdf.

No public or agency comments related to hazards and hazardous materials were received in response to the Notice of Preparation.

4.5.1 Environmental Setting

The term “hazardous material” is defined in Section 25501 of the California Health and Safety Code as any material that, because of quantity, concentration, or physical or chemical characteristics poses a significant present or potential hazard to human health and safety or to the environment. Hazardous materials are grouped into the following four categories, based on their properties: toxic (causes human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), and reactive (causes explosions or generates toxic gases).

A variety of hazardous materials are used on campus during the course of daily operations. Hazardous chemicals used on campus include: chemical solvents, reagents, and aromatic hydrocarbons that are used in campus laboratories; pesticides, fungicides, and herbicides used by agricultural programs and in landscape maintenance; gasoline and diesel fuels, oils and lubricants, antifreeze, cleaning solvents and corrosives, paints and paint thinners, and freon refrigerants used in vehicle and building maintenance. In addition, biohazardous materials are used in teaching and research activities. The use of hazardous materials on campus generates hazardous byproducts that must eventually be handled and disposed of as hazardous wastes.

4.5.2 Regulatory Considerations

Generation, transportation, and disposal of hazardous wastes are regulated by various agencies. The lead federal regulatory agency is the U.S. Environmental Protection Agency (EPA). The California Department of Toxic Substances Control (DTSC) has primary state regulatory responsibility related to hazardous materials but can delegate enforcement authority to local jurisdictions that enter into agreements with the state agency, as it did with Yolo County Department of Environmental Health (YCDEH) under the Certified Unified Program Agency (CUPA) program.
Federal

Resource Conservation and Recovery Act

Federal hazardous waste laws are generally promulgated under the Resource Conservation and Recovery Act (RCRA) of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984. These laws provide for the “cradle to grave” regulation of hazardous wastes. Any business, institution, or other entity that generates hazardous waste is required to identify and track its hazardous waste from the point of generation until it is recycled, reused, or disposed.

The EPA has primary responsibility for implementing RCRA, but individual states are encouraged to seek authorization to implement some or all RCRA provisions. California received authority to implement the RCRA program in August 1992. The California DTSC is responsible for implementing the RCRA program as well as California’s own hazardous waste laws, which are collectively known as the Hazardous Waste Control Law. Under the CUPA program, DTSC has in turn delegated enforcement authority to Yolo County, which has direct oversight of hazardous waste management at UC Davis.

Hazardous Materials Transportation Act

The U.S. Department of Transportation regulates hazardous materials transportation under Title 49 CFR. State agencies with primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and the California Department of Transportation. These agencies also govern permitting for hazardous materials transportation.

Title 29 CFR, Occupational Safety and Health Act

The Occupational Safety and Health Act is intended to ensure that employers provide their workers with a work environment free from recognized hazards to safety and health, such as exposure to toxic chemicals, excessive noise levels, mechanical dangers, or unsanitary conditions. The Fed/OSHA oversees the administration of the Act. California created its own program that the Fed/OSHA has determined is at least as effective as the federal program. Thus, Cal/OSHA administers the program in California. To establish standards for workplace health and safety, the Act also created the National Institute for Occupational Safety and Health (NIOSH) as the research institution for Fed/OSHA. Those regulations apply to all UC Davis employees, including student employees and research assistants. These standards are adopted at the state level and enforced on the campus by Cal/OSHA as described below.

Animal Welfare Act

The Animal Welfare Act of 1966 (and its subsequent amendments) is the primary federal law that governs the use of animals in research, testing, and teaching in the U.S. This Act is implemented and enforced by the U.S. Department of Agriculture (USDA). It provides the basis for the regulatory authority given to the USDA to ensure the welfare of animal species that are covered by the Act and used in regulated activities. The Act includes all warm-blooded vertebrates but specifically exempts all farm animals used in food and fiber research or production (the treatment of which is addressed in the Federation of Animal Science Societies’ Guide for the Care and Use of Agricultural Animals in Research and Teaching 2009). The Act also exempts rodents used in research.

Compliance with the regulations is ensured at each institution by an Institutional Animal Care Use and Committee (IACUC). The primary functions of an IACUC are reviewing and inspecting all aspects of an institution’s animal care and use program, including all animal facilities and animal care records;
reviewing animal use protocols; reviewing and investigating complaints about animal use; and making recommendations to the Institutional Official. At UC Davis, the Animal Use and Care Administrative Advisory Committee serves as the IACUC.

U.S. Public Health Service Policy on the “Humane Care and Use of Laboratory Animals”

The U.S. Public Health Service (PHS) Policy on the “Humane Care and Use of Laboratory Animals” requires institutions to establish and maintain proper measures to ensure the appropriate care and use of all animals involved in research, research training, and biological testing conducted or supported by the PHS. The PHS Policy is intended to implement and supplement the U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training.

National Animal Welfare Guidelines and Accreditation

The Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC International) is a private nonprofit organization that promotes the humane treatment of animals in science through a voluntary accreditation program. UC Davis submits to this voluntary accreditation program in addition to complying with local, state, and federal laws that regulate animal research. By undergoing the voluntary accreditation process, the research programs demonstrate that they not only meet the minimum regulatory requirements but actually exceed them to achieve excellence in animal care and use. AAALAC International relies on the Guide for the Care and Use of Laboratory Animals (published by the National Research Council) as its primary standard for evaluation of laboratory animal care and use programs. In this guide, “laboratory animals” refer to any vertebrate animals, including traditional laboratory animals, farm animals, wildlife, and aquatic animals. As a condition of accreditation, AAALAC International requires correction of any deficiencies in programs or physical facilities that they observe during site visits.

Health Research Extension Act

The Health Research Extension Act of 1985 provides for the establishment of guidelines for the proper care and treatment of animals used in biomedical and behavioral research, by the Director of the National Institutes for Health (NIH). The guidelines require animal care committees at each entity that conducts biomedical and behavioral research with funding from the NIH to ensure compliance with the guidelines. The UC Davis Animal Use and Care Administrative Advisory Committee meets this requirement for research on the campus.

Centers for Disease Control and National Institutes of Health Guidelines

The Centers for Disease Control (CDC) and NIH have issued federal guidelines that address biological safety; because research at university campuses often involves federal funding, compliance with these guidelines becomes mandatory for most research. CDC and NIH have developed containment and handling guidelines for use in microbiological and biomedical laboratories. UC Davis has adopted these guidelines as standard practice and instituted Biosafety Levels in its laboratories. These guidelines identify four Biosafety Levels which laboratories are required to comply with, depending on the potential of the hazard used. Biosafety Level 1 is for the least hazardous biological agents and Biosafety Level 4 is for the most hazardous biological agents.

State

Hazardous Materials Business or Management Plan
Chapter 6.95 of the California Health and Safety Code requires facilities that use, produce, store, or generate hazardous substances or have a change in business inventory to have a Hazardous Materials Management Plan (HMMP) or Business Plan. The plan must disclose the type, quantity, and storage location of materials. The law also requires a site-specific emergency response plan, employee training, and designation of emergency contact personnel. As a state agency and large-quantity user of hazardous materials, UC Davis is required to submit an HMMP to the local administering agency, the YCDEH. The HMMP describes hazardous materials storage and handling practices and contains procedures for monitoring storage, performing regular inspections, detecting releases, and testing the detection systems on a regular basis. Compliance with the hazardous materials programs at UC Davis is verified through annual self-audits, with periodic random follow up audits by the YCDEH.

**Title 22, California Hazardous Waste Control Law**

DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under 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. DTSC has delegated some of its authority under the Hazardous Waste Control Law to county health departments and other CUPAs, including the YCDEH.

**Title 8 CCR, California Occupational Safety and Health Act**

In California, under the California Occupational Safety and Health Act, Cal/OSHA assumes primary responsibility for developing and enforcing standards for safe workplaces and work practices. In order for the Fed/OSHA program to be delegated to the state, Cal/OSHA standards must be at least as stringent as Fed/OSHA standards, and they are generally more stringent. Cal/OSHA hazardous materials regulations include requirements for safety training, availability of safety equipment, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations, which include identifying and labeling hazardous substances, providing employees with Material Safety Data Sheets, and describing employee training programs. These regulations also require the campus to prepare emergency action plans, including escape and evacuation procedures. Title 8 also establishes general industry safety orders for blood-borne pathogens, sharps injury prevention, and disposal of infectious wastes. All laboratories that involve the handling of biohazardous materials must comply with Cal/OSHA standards.

**Emergency Response Plan**

California has developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local government and private agencies. The plan is administered by the Office of Emergency Services and includes response to hazardous materials incidents. The Office of Emergency Services coordinates the response of other agencies, including the Cal/EPA, the California Highway Patrol, the California Department of Fish and Game, the Regional Water Quality Control Board, the Yolo-Solano Air Quality Management District, and the City of Davis Fire Department.

**Local**

The campus’ Office of Environmental Health and Safety (EH&S) coordinates most local, state, and federal regulatory compliance functions related to the campus’ health, safety, and environmental issues. EH&S performs safety education and training, regulatory interpretation and applicability, approval of potentially hazardous procedures, resolution of safety problems, surveillance, and monitoring. In addition, EH&S provides guidance for several campus safety programs, including: the Chemical Inventory System, which tracks inventory and use of hazardous materials on campus; the CUPA Self-Audit Program, which
complies with the terms of an agreement with the YCDEH; development of laboratory-specific Chemical Hygiene Plans; the Radiation and X-Ray Safety Programs; and the Biological Safety Administrative Advisory Committee. EH&S is also a working partner in such campus administrative advisory groups as the Chemical Safety Committee, the Radiation Safety Committee, the Animal Use and Care Committee, and the Biological Safety Committee. External administrative and benchmarking reviews of the EH&S programs are conducted periodically to identify means of further improving the programs.

**Biohazardous Materials Safety Programs**

The UC Davis Biosafety Manual serves as the basis for general safety guidelines in the laboratory. It also outlines campus policy pertaining to the use of biological agents, responsibilities of those involved in the use of these agents, and procedures for obtaining Biological Use Authorizations (BUAs). The U.S. Public Health Service publication Biosafety in Microbiological and Biomedical Laboratories, with some revisions, serves as the campus standard for the use of biological agents. The biosafety manual specifies that the NIH Guidelines for Research Involving Recombinant DNA Molecules are to be followed for research involving recombinant DNA.

The Biological Safety Administrative Advisory Committee (BSAAC) is responsible for ensuring the safe use of biological agents, establishing compliance with the UC Davis Biosafety Manual, reviewing BUAs, formulating and recommending changes in campus policy, authorizing EH&S to terminate or curtail any project or any teaching program involving the use of biological agents when it is in the best interest of the health and safety of the campus community, and establishing the level of medical surveillance for each program after reviewing the recommendation of the campus Occupational Health physician. The BSAAC also reviews applications submitted to the USDA for permits to release plants or organisms into the environment, including field trials of transgenic plants.

The campus Occupational Health physician reviews all BUAs and safety protocols and advises the Principal Investigator and the BSAAC regarding the necessity of medical surveillance and immunization of personnel exposed, or potentially exposed, to biological agents.

Training is required for all employees, including students and volunteers, working in laboratories or animal rooms where biological agents are used. All training must be documented and the signed documentation is kept in the laboratory or with departmental records. EH&S also provides online biological safety information and biological and medical waste training classes.

EH&S performs annual inspections of laboratories operating at Biosafety Levels 2 and 3, and laboratories conducting experiments covered by the NIH guidelines for research involving recombinant DNA. The inspections are intended to verify that all laws and regulations outlined in the UC Davis Biosafety Manual and by state and federal agencies are followed. The inspections are tracked using an online database.

**Laboratory Animals Safety Programs**

The Office of the Campus Veterinarian (OCV), a unit of EH&S, oversees the health and welfare of all teaching and research animals. The office provides consultation and training for faculty, staff, and students. The office also staffs the UC Davis Animal Use and Care Administrative Advisory Committee, and conducts periodic inspections of UC Davis animal facilities and study areas. The office also acts as the primary point of contact between the campus and regulatory agencies, accrediting bodies, and funding agencies with respect to issues of vertebrate animal care and use. The OCV maintains the campus permit with the California Department of Fish and Game for vertebrate animals that are not indigenous to California.
The Animal Use and Care Administrative and Advisory Committee (AUCAAC), which is the IACUC of the campus, is composed of faculty, staff, and a member of the public. The AUCAAC functions as the institutional animal care and use committee required by the US PHS and University of California policy. The committee advises the Vice Chancellor of Administration on matters pertaining to campus vertebrate animal use and care, reviews animal use and care protocols, and makes recommendations to the Vice Chancellor of Administration regarding alteration or suspension of research or teaching activities that are not in compliance with governmental and university policies and regulations or not in keeping with the campus’ PHS Animal Welfare Assurance. The committee may also recommend restrictions to be imposed on campus investigators or instructors who ignore such policies or regulations. The IACUC reviews each program at least twice yearly.

Each instructor or investigator in charge of any teaching or research activity involving live vertebrate animals must prepare and submit a Protocol for Animal Use and Care. The protocols are reviewed by members of the EH&S staff before they are submitted to the AUCAAC and, if necessary, EH&S staff works with the investigator to improve the document. No teaching or research activity involving live vertebrate animals is permitted until such protocol has been reviewed and approved. Protocols are updated annually. Animals may not be purchased for any research or teaching activity without an approved Protocol for Animal Use and Care. When the AUCAAC receives a protocol involving the use of a hazardous agent, the document is copied to the appropriate committee staff member at EH&S and a special “Animal Handler Precautions” document is prepared by the investigator, reviewed by EH&S, and posted on the door to the animal room.

Supervisors are responsible for providing adequate supervision and training to ensure conformance with occupational safety practices, animal care regulations, and accepted experimental techniques. All those working with animals are required to attend a workshop provided by EH&S on laws and regulations relating to the use of animals in research and teaching. EH&S also provides courses on specific laboratory animal handling skills.

4.5.3 Standards of Significance

The impacts related to hazards and hazardous materials 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:

- 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 0.25 mile of an existing or proposed school;
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment;
- For a project located within an airport land use plan or, where such 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.

### 4.5.4 Methodology

The hazards and hazardous materials analysis for the proposed project is tiered from the discussion presented in Section 4.7 of the 2003 LRDP EIR. Additional analysis presented here focuses on the use and generation of hazardous chemicals and waste and generation of biohazardous materials and waste. This impact assessment includes consideration of the typical issues related to hazardous chemicals and biohazardous materials for proposed laboratories and project-specific practices that could result from the operation of the proposed building and the proposed research program.

For hazardous chemicals, an impact analysis to confirm the finding of less-than-significant was conducted using interviews with staff from the CNPRC and the UC Davis EH&S staff to review compliance with hazardous chemical requirements, accidental exposures or releases of hazardous chemicals, and adequacy of current policies for hazardous chemical use.

For biohazardous materials including use of laboratory animals, the proposed laboratory design and material handling protocols were reviewed by the campus biosafety officer to ensure that the proposed project would comply with biohazardous materials requirements. In addition, records from the CNPRC laboratories were reviewed to determine whether any biosafety containment protocols were inadequate or in need of revision in order to ensure adequate use, disposal, and transport of biohazardous materials.

### 4.5.5 LRDP Mitigation Measures included in the Proposed Project

Mitigation measures in the 2003 LRDP EIR related to hazards and hazardous materials that are applicable to the proposed project are presented below. Since these previously adopted mitigation measures are already being carried out as part of implementation of the 2003 LRDP, they are included in and are a part of the proposed project and will not be readopted.

#### 2003 LRDP EIR Mitigation Measures

**HAZARDS & HAZARDOUS MATERIALS**

<table>
<thead>
<tr>
<th>Mitigation Measure</th>
<th>Description</th>
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<tbody>
<tr>
<td>4.7-1</td>
<td>The campus shall continue to implement the same (or equivalent) safety plans, programs, practices, and procedures related to the use, storage, and disposal of hazardous chemical materials during the 2003 LRDP planning horizon, including, but not necessarily limited to, the Business Plan, Hazardous Materials Communication Program, Chemical Inventory System, CUPA Self-Audit program, Injury and Illness Prevention Program, Chemical Hygiene Plans, Medical Surveillance Program, Chemical Safety Advisory Committee, Chemical Carcinogen Safety Program, and EH&amp;S audits and safety training. These programs may be replaced by other programs that incorporate similar health and safety measures.</td>
</tr>
<tr>
<td>4.7-2(a)</td>
<td>Implement LRDP Mitigation 4.7-1.</td>
</tr>
<tr>
<td>4.7-2(b)</td>
<td>The campus shall continue to implement the same (or equivalent) hazardous waste management programs during the 2003 LRDP planning horizon, including, but not necessarily limited to, hazardous waste storage and handling procedures, the waste minimization program, the pretreatment program, and the Waste Exclusion Program. These programs may be subject to modification as more stringent standards are developed or if the programs become obsolete through replacement by other programs that incorporate similar health and safety protection measures.</td>
</tr>
<tr>
<td>4.7-3(a)</td>
<td>Implement LRDP Mitigation 4.7-1.</td>
</tr>
</tbody>
</table>
2003 LRDP EIR Mitigation Measures  
HAZARDS & HAZARDOUS MATERIALS

4.7-3(b) The campus shall continue to implement the same (or equivalent) Health Physics Program during the 2003 LRDP planning horizon. This program may be subject to modification as more stringent standards are developed or if the program becomes obsolete through replacement by other programs that incorporate similar health and safety protection measures.

4.7-4(a) Implement LRDP Mitigation 4.7-1.

4.7-4(b) Implement LRDP Mitigation 4.7-3(b).

4.7-5(a) Implement LRDP Mitigation 4.7-1.

4.7-5(b) The campus shall continue to implement the same (or equivalent) Biosafety Program during the 2003 LRDP planning horizon. This program may be subject to modification as more stringent standards are developed or if the program becomes obsolete through replacement by other programs that incorporate similar health and safety protection measures.

4.7-6(a) Implement LRDP Mitigation 4.7-1.

4.7-6(b) Implement LRDP Mitigation 4.7-5(b).

4.7-7(a) Implement LRDP Mitigation 4.7-1.

4.7-7(b) Implement LRDP Mitigation 4.7-5(b).

4.7-7(c) The campus shall continue to implement the same (or equivalent) programs related to laboratory animal use during the 2003 LRDP planning horizon, including, but not necessarily limited to, inspections of animal facilities and study areas by the Campus Veterinarian, requiring investigators to prepare Animal Use and Care Protocols, review of Animal Use and Care Protocols by the AUCAAC and EH&S, employee training in animal handling, and the campus animal health program. These programs may be subject to modification as more stringent standards are developed or if the programs become obsolete through replacement by other programs that incorporate similar health and safety protection measures.

4.7-8 The campus shall continue to require that packaging of chemicals to be transported on public roads conform with all legal requirements.

4.7-9 Implement LRDP Mitigations 4.7-1 through 4.7-8.

4.7-12 The campus shall perform due diligence assessments of all sites where ground-disturbing construction is proposed.

4.7-17 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 due to construction-related road closures, 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, the campus shall provide appropriate signage indicating alternative routes. To ensure adequate access for emergency vehicles when construction projects would result in temporary lane or roadway closures, the campus shall inform emergency services, including the UC Davis Police and Fire Departments, and American Medical Response, of the closures and alternative travel routes.

4.5.6 Project Impacts and Mitigation Measures

Impacts Adequately Analyzed in the 2003 LRDP EIR or Not Applicable to THE PROJECT

As determined in the Tiered Initial Study for the project, the potential impacts related to Hazards and Hazardous Materials were adequately analyzed in the 2003 LRDP EIR and were found to be less than significant. Even though these impacts were found to be less-than-significant, the 2003 LRDP EIR included mitigation measures to further reduce the significance of these impacts. The Tiered Initial Study found that 2003 LRDP EIR Mitigation Measures 4.7-1, 4.7-2 (a & b), 4.7-3 (a & b), 4.7-4 (a & b), 4.7-5
Project-Level Impacts

Impact HAZ-1: Implementation of the proposed project would increase the routine transport, use, storage, and disposal of hazardous chemicals, but the increases would be minor and would be within the levels analyzed in the 2003 LRDP EIR. (Less than Significant)

The 2003 LRDP EIR found that implementation of the 2003 LRDP would increase routine hazardous chemical use (LRDP Impact 4.7-1), routine generation of hazardous chemical wastes (LRDP Impact 4.7-2), and routine hazardous materials transport to and from the campus (LRDP Impact 4.7-8) by UC Davis laboratories, departments, and maintenance/support operations, but that these increases would not create significant hazards to the public or the environment. Hazardous waste treatment, storage, and disposal facilities currently have available capacity to accept and safely manage UC Davis chemical waste.

Laboratories at the CNPRC typically achieve a very high level of compliance with hazardous materials requirements, and have a long track record of being in full compliance with staff training programs for hazardous materials requirements. The CNPRC has had no violations during routine CUPA hazardous materials inspections conducted by YCDEH (Streisand 2010). Training and documentation of training at the CNPRC is extremely extensive and rigorous because of the intensive research programs within individual laboratories (Streisand 2010). Laboratory workers at the CNPRC receive UC Davis training trained on an annual basis to strictly follow all hazardous material regulations and guidelines, as applicable. The proposed project would result in increased transport, use, and disposal of hazardous chemicals, however, the proposed project would be typical of CNPRC laboratories, which use relatively small volumes of hazardous chemicals as is typical of laboratories conducting biomedical research (Streisand 2010). This impact is considered less than significant.

The campus will continue to implement relevant safety programs and meet relevant standards regarding hazardous materials use, transport, and waste management for the proposed project, as well as for other projects proposed under the 2003 LRDP. Furthermore, because the proposed project is an element of the growth under the 2003 LRDP it includes LRDP Mitigation Measures 4.7-1, 4.7-2(a-b), and 4.7-8. Mitigation Measure 4.7-1 requires the campus to continue to implement the same (or equivalent) safety plans, programs, practices, and procedures related to the use, storage, and disposal of hazardous chemical materials during the 2003 LRDP planning horizon, These programs may be replaced by other programs that incorporate similar health and safety measures. Mitigation Measure 4.7-2 (a) requires that the campus implement LRDP Mitigation Measure 4.7-1. Mitigation Measure 4.7-2(b) requires that the campus continue to implement the same (or equivalent) hazardous waste management programs during the 2003 LRDP planning horizon. These programs may be subject to modification as more stringent standards are developed or if the programs become obsolete through replacement by other programs that incorporate similar health and safety protection measures. Therefore, the project would result in a less than significant impact.
Mitigation Measures: No mitigation required.

Impact HAZ-2: Implementation of the proposed project would increase the routine transport, use, storage, and disposal of biohazardous materials, but the increases would be minor and would be within the levels analyzed in the 2003 LRDP EIR. (*Less than Significant*)

The 2003 LRDP EIR found that implementation of the 2003 LRDP would increase routine use of biohazardous materials (LRDP Impact 4.7-5) and routine generation of biohazardous waste (LRDP Impact 4.7-6) by UC Davis laboratories, departments, and maintenance/support operations, which would not create significant hazards to the public or the environment. The CNPRC has an extensive record of compliance with regulatory standards and campus policies related to the use, transport, and disposal of biohazardous materials. As discussed above, the CNPRC has had no violations during routine CUPA inspections conducted by YCDEH. In addition, in May 2009, the California Department of Public Health conducted a medical waste inspection of the CNPRC and did not find any violations (Streisand 2010).

The use of biohazardous materials at UC Davis would increase as a result of the proposed project. The potential impact of this increased use on employee health, the public, and the environment is considered less than significant because, as explained in more detail below, regulatory requirements and the current campus guidelines and practices for controlling employee exposures to infectious agents would be followed, which would also minimize the potential impacts to the public or the environment from biohazardous materials used in the proposed research facilities.

To meet the anticipated research requirements, the proposed project would be constructed and furnished to conform to the requirements for Biosafety Level (BSL) 2 as defined in the Centers for Disease Control and Prevention (CDC) publication *Biosafety in Biomedical and Biological Laboratories* (BMBL). This publication defines four biosafety levels that apply to biohazardous materials operations, depending on the risk posed by the organism involved in the research. The four biosafety levels are designated as BSL-1 through -4 with BSL-1 requiring the least level of necessary precaution and BSL-4 requiring the most amount of precaution.

The BSL-2 designation is appropriate for use with biohazardous materials that are considered to be of ordinary (not special) potential hazard and may produce varying degrees of disease through accidental autoinoculation, ingestion, and skin or mucous membrane exposure. Examples of design details for a BSL-2 facility include the following:

- Lockable doors must be provided for facilities that house restricted agents.
- Planning for new laboratories should consider locating them away from public areas.
- Each laboratory must contain a sink for hand washing.
- Each laboratory must be designed so that it can be easily cleaned and chairs and other furniture used in laboratory should be covered with a non-fabric material that can be easily decontaminated.
- Laboratory furniture must be capable of supporting anticipated loading and uses. Spaces between benches, cabinets, and equipment must be accessible for cleaning.
• Biological safety cabinets should be installed in a manner such that fluctuations of the room air supply and exhaust air do not cause the biological safety cabinets to operate outside their parameters for containment.

• Biological safety cabinets should be located away from doors, from windows that can be opened, from heavily traveled laboratory areas, and from other potentially disruptive equipment so as to maintain the air flow parameters for containment.

• An eyewash station must be readily available.

• Illumination must be adequate for all activities, and must avoid reflection and glare that could impede vision.

The laboratory and animal holding areas would be designed to meet BSL-2 and BSL-2 enhanced\(^{18}\) protocols. The RDU conducts research using non-human primates and consequently, the RDC building would include BSL-2 and BSL-2 enhanced design features because organisms that are endemic to non-human primates necessitate safety precautions to prevent unintended exposure to research staff. In addition, the RDU research program would include research to test respiratory functions of animals infected with specific diseases. The diseases that would be used in the research program include haemophilus influenza, rhinovirus, respiratory syncytial virus, and heliobacter virus. The use of these organisms as part of the research program would require both the design features of the BSL-2 and BSL-2 enhanced facility and adoption of additional laboratory precautionary measures such as protective gowns and increased signage. The project as designed and operated under the campus protocols would include adequate controls to minimize the potential to expose workers, the public and the environment to biohazardous materials.

Aerosols, such as cigarette smoke, would likely be generated prior to pulmonary function testing. The proposed project would not use any substances not currently used at the CNPRC (Cooling 2010). Potential aerosol emissions would be controlled by a biosafety cabinet. Given the controls on infectious organisms handled in the laboratory and aerosol releases, the potential that any aerosols would be released from the laboratory carrying pathogens in sufficient quantities to reach an animal or a person outside the laboratory and cause disease, would be extremely low.

Biohazardous waste generated at the proposed laboratory, including specimens, workers’ disposable protective clothing, and sharp objects such as needles, scalpels, and broken glass, would be treated in an autoclave or approved bleaching solution before it leaves the laboratory. Once treated, the waste would be considered non-hazardous waste (unless it also contains hazardous chemicals) and would be sent to the campus landfill or the campus wastewater treatment plant. Hazardous waste disposal of autoclaved materials would take place in conformance with applicable regulations for the transport and disposal of hazardous waste, which could include transport to an authorized hazardous waste landfill.

In compliance with UC Davis policy, the research program would obtain a Biological Use Authorization (BUA) for the work that would be performed using infectious organisms, subject to approval by the Biological Safety Administrative Advisory Committee (BSAAC). Consistent with the UC Davis Biosafety Program, the laboratories would be inspected annually by the EH&S Biosafety Officer to verify compliance with all policies and procedures outlined in the UC Davis Biosafety Manual and with all applicable federal and state standards and requirements. The biosafety cabinets would also be tested and certified on an annual basis. Following UC Davis policy, appropriate training would be required for all employees working in the laboratory.

\(^{18}\) “BSL-2 enhanced” is used to describe a BSL-2 facility that applies some BSL-3 practices.
Furthermore, because the proposed project is an element of the growth under the 2003 LRDP it includes LRDP Mitigation Measures 4.7-5 (a-b) and 4.7-6 (a-b). Mitigation Measures 4.7-5(a) and 4.7-6(a) require that the campus implement LRDP Mitigation 4.7-1, which is described above. Mitigation Measures 4.7-5(b) and 4.7-6 (B) require that the campus continue to implement the same (or equivalent) Biosafety Program during the 2003 LRDP planning horizon. This program may be subject to modification as more stringent standards are developed or if the program becomes obsolete through replacement by other programs that incorporate similar health and safety protection measures. Therefore, the project would have a less-than-significant impact related to biohazardous materials.

**Mitigation Measures:** No mitigation required.

**Impact HAZ-3:** Implementation of the proposed project would increase the routine use of laboratory animals, but the increase would be minor and would be within the levels analyzed in the 2003 LRDP EIR. *(Less than Significant)*

The 2003 LRDP EIR found that implementation of the 2003 LRDP would increase routine use of laboratory animals by UC Davis laboratories (LRDP Impact 4.7-7), which would not significantly increase risk of animal bites, escapes, or disease transmission. The CNPRC has an extensive record of compliance with regulatory standards and campus policies related to the use of laboratory animals. The CNPRC is part of the UC Davis AAALAC accredited program. Current accreditation was confirmed in May 2008 and the next inspection is scheduled for October 2010. The USDA has noted no major deficiencies in the indoor and outdoor housing areas at the CNPRC during various inspections over the past five years. Biannual inspections conducted by UC Davis IACUC have also noted no major deficiencies. In addition, Cal/OSHA found no violations during their April 2010 inspection of the CNPRC animal areas *(Streisand 2010)*.

The use of laboratory animals presents physical safety hazards to workers such as bites, scratches, and exposure to animal allergens. The proposed project would involve experimentation with laboratory animals infected with specific diseases such as haemophilus influenza, rhinovirus, respiratory syncytial virus, and heliobacter virus, as discussed above. The laboratory animals could also carry other endemic diseases. These diseases could be transmitted to animal care personnel or others who come in direct contact with the animals. Workers could be exposed to infectious agents through skin contact, or through injection resulting from scratches, bites, or needle sticks.

Incidents involving cuts, bites, and scratches can be minimized through proper animal handling protocols and worker training. Exposure of animal care personnel and building occupants to animal allergens is minimized by occupational health programs that inform the caretakers about risks, and through frequent air changes of noncirculated air in animal rooms, respiratory protection, and ensuring that air from the animal rooms does not flow into the nonvivarium portions of the building. Exposure to experimental infectious agents is controlled through use of appropriate biosafety procedures, including the use of biosafety cabinets, and through proper animal handling protocols. Exposure of animal care personnel to endemic diseases would continue to be minimized through the implementation of the campus animal health program, which includes regular checks of animals for disease, vaccination programs; and proper animal handling protocols. The proposed project would comply with existing programs and controls to reduce the impacts resulting from the increased use of laboratory animals on campus.

Furthermore, because the proposed project is an element of the growth under the 2003 LRDP it includes LRDP Mitigation Measures 4.7-7 (a-c). Mitigation Measure 4.7-7(a) requires the campus to implement LRDP Mitigation 4.7-1 which is described above. LRDP Mitigation 4.7-7(b) requires the campus to implement LRDP Mitigation 4.7-5(b) which is also described above. LRDP Mitigation 4.7-7(c) requires
the campus to continue to implement the same (or equivalent) programs related to laboratory animal use during the 2003 LRDP planning horizon, including, but not necessarily limited to, inspections of animal facilities and study areas by the Campus Veterinarian, requiring investigators to prepare Animal Use and Care Protocols, review of Animal Use and Care Protocols by the AUCAAC and EH&S, employee training in animal handling, and the campus animal health program. These programs may be subject to modification as more stringent standards are developed or if the programs become obsolete through replacement by other programs that incorporate similar health and safety protection measures. Therefore, the impact of increased use of laboratory animals would be less than significant.

**Mitigation Measures:** No mitigation required.

**Impact HAZ-4:** The proposed project would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. (Less than Significant)

Searches of federal, state, and local agency databases conducted as part of preparation of this EIR determined that there are no hazardous materials sites on the UC Davis campus that are currently listed on the Cortese List compiled pursuant to Government Code Section 65962.5. The current campus due diligence policy and Cal/OSHA regulations minimize the exposure of construction workers to contaminants. In addition, if contaminants are identified on the project site, the campus would coordinate site remediation. No contamination has been identified on the project site or adjacent sites. Furthermore, because the proposed project is an element of the growth under the 2003 LRDP it includes LRDP Mitigation Measure 4.7-12, which requires that due diligence surveys be performed. Therefore, the project would have a less-than-significant impact with respect to exposure to existing hazardous material contamination.

**Mitigation Measures:** No mitigation required.

**Cumulative Impacts and Mitigation Measures**

The proposed project is an element of campus development evaluated in the 2003 LRDP EIR. The cumulative impacts related to hazardous materials associated with development expected under the 2003 LRDP are discussed in Section 4.7, pages 4.7-64 through 4.7-71 of the 2003 LRDP EIR. LRDP Impact 4.7-18 concludes that the potential hazardous materials and biohazardous materials impact from campus growth and development under the 2003 LRDP would be a less than significant impact and no mitigation would be required. The hazardous chemicals, biohazardous materials, and laboratory animals issues evaluated in this Focused Tiered Draft EIR were determined to not result in a significant impact to the environment. There has been no change in the conclusion regarding cumulative hazardous chemicals, biohazardous materials, and laboratory animals impacts that could result from the proposed project and the full implementation of the 2003 LRDP. Nothing in the proposed project would exceed the CNRPC laboratory protocols or the UC Davis EH&S capabilities as explained in this Focused Tiered Draft EIR and the 2003 LRDP EIR. Accordingly, the proposed project would not result in cumulatively considerable hazardous materials impacts from hazardous chemicals, biohazardous materials, or laboratory animals.

**4.5.7 References**


4.6 TRANSPORTATION, CIRCULATION, & PARKING

Section 4.14 of the 2003 LRDP EIR addresses the transportation, circulation, and parking effects of campus growth under the 2003 LRDP. Since the publication of the 2003 LRDP EIR, the environmental impact checklist questions related to transportation and traffic in Appendix G, Section XVI of the CEQA Guidelines, have been amended. The amended Appendix G no longer considers whether a proposed project would cause a substantial increase in traffic related to existing street capacity and traffic load, and impacts on parking were deleted from consideration in Appendix G. The cumulative analysis is included with the project-specific analysis so that the traffic impacts are more realistically considered and disclosed in a manner that is consistent with the expected future traffic conditions. The Initial Study indicated that the EIR would evaluate Transportation, Circulation, and Parking impacts to explain the details of the project and the implications of the checklist revisions to Appendix G Section XV of the CEQA Guidelines.

4.6.1 Environmental Setting

UC Davis is served by six main campus roadways or “gateways” that connect the campus to residential and downtown areas in the City of Davis, and two gateways that provide direct access to regional freeways (I-80 and SR 113). Circulation within the central campus is accommodated primarily by the campus “loop” roadway system, which includes Russell Boulevard, A Street, New and Old Davis Roads, California Avenue, and La Rue Road. Other roadways within the core campus area are restricted to transit and emergency vehicles, bicyclists, and pedestrians. Primary vehicular access to the west campus is provided by Hutchison Drive and County Road 98, to the south campus by Old Davis Road, and to Russell Ranch by Russell Boulevard.

Level of service (LOS) is a general measure of traffic operating conditions whereby a letter grade, from A (the best) to F (the worst), is assigned to roadway intersections. These grades represent the comfort and convenience associated with driving from the driver’s perspective. To assess the worst-case traffic conditions, LOS is measured during morning (7 to 9 AM) and afternoon (4 to 6 PM) peak commute times. The LOS of campus roadways varies. Monitoring of campus intersections during peak hours in Fall 2001 and Fall 2002 found that the Hutchison Drive/Health Sciences Drive intersection (with LOS E during the PM peak hour) was operating below the campus’ operation standard (standards are identified in the following section) and a traffic signal was subsequently added to the intersection. Recent traffic monitoring in 2008 indicated that the intersection of California and Old Davis Road is approaching the threshold for an improvement and the campus plans to construct the necessary improvement (a new roundabout) in the summer of 2011. Since 2003, the Hutchison/Health Sciences Drive intersection was modified from a stop-controlled intersection to a traffic-signal

UC Davis conducted traffic monitoring in the Fall of 2008 (Fehr and Peers, 2009) with the following actions:

- Peak hour traffic counts were conducted at 33 on-campus and off-campus intersections
- Daily traffic volumes were collected on 19 roadway segments
- The peak hour and daily traffic volumes collected in Fall 2008 were compared to Fall 2001 and Winter
- 2005 traffic volumes (as reported in the Winter 2005 LRDP Transportation Mitigation Monitoring Update)
- Traffic operations were analyzed at each study intersection during the AM and PM peak hours
- Intersections were compared to the level of service (LOS) standards adopted in the 2003 LRDP and mitigation measures were recommended to improve operations
Daily traffic volumes, including the percentage of buses and heavy vehicles, were summarized for the six campus gateways.

The weaving section on northbound State Route 113 between Hutchison Drive and Russell Boulevard was analyzed during the PM peak hour.

The key findings of the update are summarized below.

**Fall 2008 Intersection Traffic Volumes**

Peak hour traffic counts were conducted in October 2008 (during the Fall Quarter) at 33 study intersections selected by UC Davis staff. The Fall 2008 peak hour traffic volumes were compared to volumes from the previous mitigation update in Winter 2005 as well as previous counts in 2001. The monitoring results are shown in Tables 4.6-1 and 4.6-2 with the intersections that are most likely to be affected by proposed project shown in italicized and shaded text.

Among the 26 intersections studied during both mitigation monitoring updates (seven additional intersections were included for 2008), only two intersections experienced an increase in AM peak hour traffic volume between Winter 2005 and Fall 2008: Hutchison Drive/Extension Center Drive (up eight percent) and Hutchison Drive/Health Sciences Drive (up seven percent). Similarly, during the PM peak hour, two intersections had increases in traffic volume: Hutchison/Health Sciences (15 percent) and Hutchison Drive/NB SR 113 Ramps (two percent).

Overall, peak hour intersection volumes were down 13 percent in the AM peak period and 14 percent in the PM peak period from the counts conducted during the last monitoring update in 2005.

**Fall 2008 Intersection Operations**

The peak hour traffic volumes were used to analyze traffic operations at the study intersections and the existing levels of service were compared to the Winter 2005 results. All of the 33 study intersections operate acceptably during the AM and PM peak hours. From the 2008 monitoring effort, UC Davis concluded that no mitigation measures were required for implementation in the near future under the currently adopted thresholds of significance identified in the 2003 LRDP.

**Fall 2008 Roadway Traffic Volumes**

Daily traffic volume counts were conducted for 19 roadway segments. These volumes were compared to those reported in the 2005 LRDP Transportation Mitigation Monitoring Update. Only one of the campus’ roadway segments studied during both monitoring updates experienced an increase in average daily traffic volume: First Street between A Street and Richards Boulevard (one percent increase). The daily traffic volumes on the following roadway segments decreased by 20 percent or more between Winter 2005 and Fall 2008:

- Russell Boulevard – California Avenue to A Street (23 percent decrease)
- La Rue Road – South of Russell Boulevard (25 percent decrease)
- La Rue Road – Garrod Drive to Dairy Road (31 percent decrease)
- Old Davis Road – A Street to Mrak Hall Drive (34 percent decrease)
- Old Davis Road – South of I-80 (31 percent decrease)

While traffic volumes have dramatically declined since the 2005 update, the overall distribution of traffic on the central campus has remained the same. Of the six main gateways serving the Central Campus, La Rue Road south of Russell Boulevard still had the highest daily traffic volume, and the highest percentage of heavy vehicles and buses (six percent) remains on Howard Way south of Russell Boulevard.
Fall 2008 State Route 113 Weaving Analysis

In the 2003 LRDP EIR, the northbound SR 113 weaving section was projected to operate at LOS D under 2015 conditions with buildout of the 2003 LRDP. Since LOS D does not meet Caltrans’ concept LOS of C for SR 113, this location is included in the mitigation monitoring update program. Currently, the northbound SR 113 weaving section between Hutchison Drive and Russell Boulevard operates acceptably at LOS B with Fall 2008 PM peak hour traffic volumes.

Table 4.6-1: AM PEAK HOUR INTERSECTION LEVELS OF SERVICE COMPARISON

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Current Traffic Control</th>
<th>AM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Fall 2001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Delay</td>
</tr>
<tr>
<td>3. Russell Blvd./Arlington Blvd.</td>
<td>SSSC^2</td>
<td>3.0/23.8</td>
</tr>
<tr>
<td>4. Russell Blvd./Eisenhower St.</td>
<td>SSSC</td>
<td>1.7/24.7</td>
</tr>
<tr>
<td>5. Russell Blvd./Arthur St.</td>
<td>Signal</td>
<td>10.6</td>
</tr>
<tr>
<td>6. Russell Blvd./SB SR 113 Ramps</td>
<td>Signal</td>
<td>8</td>
</tr>
<tr>
<td>7. Russell Blvd./NR SR 113 Ramps</td>
<td>Signal</td>
<td>10.3</td>
</tr>
<tr>
<td>8. Russell Blvd./Orchard Park Dr.</td>
<td>SSSC</td>
<td>18.2/50.0</td>
</tr>
<tr>
<td>10. Russell Blvd./Anderson Rd./La Rue Rd.</td>
<td>Signal</td>
<td>23.2</td>
</tr>
<tr>
<td>11. Russell Blvd./California Ave.</td>
<td>SSSC</td>
<td>1.8/16.5</td>
</tr>
<tr>
<td>12. Russell Blvd./Oak Ave.</td>
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<td>5.9</td>
</tr>
<tr>
<td>13. Russell Blvd./College Park/Howard Way</td>
<td>Signal</td>
<td>21.7</td>
</tr>
<tr>
<td>17. Orchard Road/La Rue Rd.</td>
<td>Signal</td>
<td>25</td>
</tr>
<tr>
<td>19. Hutchison Dr./County Road 98</td>
<td>SSSC</td>
<td>4.7/17.7</td>
</tr>
<tr>
<td>21. Hutchison Dr./SB SR 113 Ramps</td>
<td>SSSC</td>
<td>10.3/19.1</td>
</tr>
<tr>
<td>22. Hutchison Dr./NR SR 113 Ramps</td>
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<td>2.9/30.7</td>
</tr>
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<td>23. Hutchison Dr./Health Sciences Dr.6</td>
<td>Signal</td>
<td>2.2/50.0</td>
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<td>25. Hutchison Dr./Extension Center Dr.</td>
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<td>26. Hutchison Dr./La Rue Rd.</td>
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<td>27. Hutchison Dr./Dairy Road</td>
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</tr>
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<td>29. Hutchison Dr./Bioletti Way</td>
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</tr>
<tr>
<td>30. First St./A St.</td>
<td>SSSC</td>
<td>10.7/50.0</td>
</tr>
<tr>
<td>31. First St./B St.</td>
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<td>33. First St./E St./Richards Blvd.</td>
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<tr>
<td>35. Richards Blvd./I-80 Ramps^4</td>
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<tr>
<td>36. Richards Blvd./Cowell Blvd./Research Park Dr.</td>
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</tr>
<tr>
<td>37. Old Davis Rd./A St.</td>
<td>AWSC</td>
<td>13</td>
</tr>
<tr>
<td>38. Garrod Dr./La Rue Rd.</td>
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<td>1.7/20.0</td>
</tr>
<tr>
<td>40. Bioletti Way/La Rue Road</td>
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<td>1.9/13.7</td>
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### Table 4.6-1 (continued)

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Current Traffic Control</th>
<th>AM Peak Hour</th>
<th>Fall 2001</th>
<th>Winter 2005</th>
<th>Fall 2008</th>
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<td>Delay</td>
<td>LOS</td>
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<td>13.3/26.2</td>
<td>B/D</td>
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<td>15.2/22.7</td>
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<td>AWSC</td>
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<td>-</td>
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</tbody>
</table>

Notes:
1. AWSC = All way stop controlled intersection. SSSC = Side street stop controlled intersection.
2. Results shown in average overall intersection delay & LOS / delay & LOS for critical movement for all SSSC intersections.
3. LOS calculations include bicycle counts collected in Fall 2001 & Fall 2008.
4. Unique conditions of Richards Boulevard discussed in text of this report.
5. Dairy Rd. south of Hutchison Dr. under construction during Fall 2001. LOS results based on Winter 2001 data.
6. Intersection was unsignalized for studies prior to the Fall 2008 update. Intersection was not an LDRP study intersection. Shading and italic text indicates intersection to be used by project vehicles. Source: Fehr & Peers, 2008.

### Table 4.6-2: PM Peak Hour Intersection Levels of Service Comparison

<table>
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<th>Intersection</th>
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<td>LOS</td>
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<td>4. Russell Blvd./Eisenhower St.</td>
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<td>E/F</td>
<td>&gt;50.0/&gt;50.0</td>
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### Table 4.6-1 (continued)

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Current Traffic Control</th>
<th>PM Peak Hour</th>
<th></th>
<th></th>
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<tr>
<td></td>
<td></td>
<td>Fall 2001</td>
<td>Winter 2005</td>
<td>Fall 2008</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Delay</td>
<td>LOS</td>
<td>Delay</td>
<td>LOS</td>
<td>Delay</td>
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<tr>
<td>25. Hutchison Dr./ Extension Center Dr.</td>
<td>SSSC</td>
<td>8.9/50.0</td>
<td>A/F</td>
<td>13.1/50.0</td>
<td>B/F</td>
<td>2/36.0</td>
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<tr>
<td>26. Hutchison Dr./La Rue Rd.</td>
<td>Signal</td>
<td>48</td>
<td>D</td>
<td>36.7</td>
<td>D</td>
<td>39.9</td>
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<tr>
<td>27. Hutchison Dr./Dairy Road</td>
<td>Signal</td>
<td>2.7/31.5^5</td>
<td>A/D^5</td>
<td>-</td>
<td>-</td>
<td>32.4</td>
</tr>
<tr>
<td>28. Hutchison Dr./Kleiber Hall Dr.</td>
<td>AWSC</td>
<td>21.9</td>
<td>C</td>
<td>-</td>
<td>-</td>
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</tr>
<tr>
<td>29. Hutchison Dr./Bioletti Way</td>
<td>AWSC</td>
<td>11.1</td>
<td>B</td>
<td>-</td>
<td>-</td>
<td>8.3</td>
</tr>
<tr>
<td>30. First St./A St.</td>
<td>SSSC</td>
<td>10.3/24.4</td>
<td>B/C</td>
<td>13.9/47.2</td>
<td>B/E</td>
<td>9.5/15.2</td>
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<td>31. First St./B St.</td>
<td>AWSC</td>
<td>23.6</td>
<td>C</td>
<td>-</td>
<td>-</td>
<td>15.8</td>
</tr>
<tr>
<td>33. First St./E St./Richards Blvd.</td>
<td>Signal</td>
<td>48</td>
<td>D</td>
<td>60.6</td>
<td>E</td>
<td>34.9</td>
</tr>
<tr>
<td>35. Richards Blvd./I-80 Ramp^4</td>
<td>Signal</td>
<td>33.4</td>
<td>C</td>
<td>25.1</td>
<td>C</td>
<td>21.4</td>
</tr>
<tr>
<td>36. Richards Blvd./Cowell Blvd./Research Park Dr.</td>
<td>Signal</td>
<td>30</td>
<td>C</td>
<td>29.4</td>
<td>C</td>
<td>34.3</td>
</tr>
<tr>
<td>37. Old Davis Rd./A St.</td>
<td>AWSC</td>
<td>11.9</td>
<td>B</td>
<td>11.6</td>
<td>B</td>
<td>10.5</td>
</tr>
<tr>
<td>38. Garrod Dr./La Rue Rd.</td>
<td>SSSC</td>
<td>4.0/26.5</td>
<td>A/D</td>
<td>4.2/20.7</td>
<td>A/C</td>
<td>2.8/14.1</td>
</tr>
<tr>
<td>40. BiolettiWay/La Rue Road</td>
<td>SSSC</td>
<td>3.7/17.2</td>
<td>A/C</td>
<td>-</td>
<td>-</td>
<td>6.4/16.5</td>
</tr>
<tr>
<td>42. New Davis Rd./Beau Vine Rd.</td>
<td>SSSC</td>
<td>7.8/21.0</td>
<td>A/C</td>
<td>6.1/15.8</td>
<td>A/C</td>
<td>5.2/14.1</td>
</tr>
<tr>
<td>44. WB I-80 Ramps/Old Davis Rd.</td>
<td>SSSC</td>
<td>1.9/15.3</td>
<td>A/C</td>
<td>2.2/15.6</td>
<td>A/C</td>
<td>1.9/14.8</td>
</tr>
<tr>
<td>45. EB I-80 Ramps/Old Davis Rd.^7</td>
<td>SSSC</td>
<td>10.4/47.3</td>
<td>B/E</td>
<td>9.5/42.2</td>
<td>A/E</td>
<td>8.8/32.5</td>
</tr>
</tbody>
</table>

Notes: 1 AWSC = All way stop controlled intersection. SSSC = Side Street stop controlled intersection. 2 Results shown in average overall intersection delay & LOS / delay & LOS for critical movement for all SSSC intersections. 3 LOS calculations include bicycle counts collected in Fall 2001 & Fall 2008. 4 Unique conditions of Richards Boulevard discussed in text of this report. 5 Dairy Rd. south of Hutchison Dr. under construction during Fall 2001. LOS results based on Winter 2001 data. 6 Intersection was not an LDRP study intersection. Shading and italic text indicates intersection to be used by project vehicles. Source: Fehr & Peers, 2008.

In addition to motorized vehicles, bicycles are a major component of the transportation system at UC Davis and in the City of Davis. UC Davis has an extensive system of bicycle paths, which makes bicycles a popular form of travel on campus. The UC Davis Bicycle Plan (UC Davis 2002) estimates that 15,000 to 18,000 bicycles travel to the campus on a typical weekday during the Fall and Spring sessions when the weather is good.

### Project Site

The project site is accessible via Hutchison Drive, County Road 98, and Primate Road, which is an internal roadway at CNPRC. Parking would be provided in existing lots located south and west of the project site.
4.6.2 Regulatory Considerations

The transportation policy, law, and regulation documents that relate to the UC Davis LRDP are summarized below. These documents were used to evaluate the 2003 LRDP’s consistency with policies, laws, and regulations for the impact analysis. Key documents include:

Route Concept and Development Report, State Route 113 (Caltrans District 3 November 1986). Route concept reports identify long-range improvements for specific state highway corridors and establish the concept or desired LOS for specific segments. Long-range improvements are identified to improve the existing facility up to the design concept expected to adequately serve 20-year traffic forecasts. The concept report for SR 113 does not propose any capacity improvements over the next 20 years within the City of Davis or adjacent to the campus. The report states that all SR 113 segments shall maintain LOS C.

Interstate 80 Transportation Concept Report (Caltrans District 3 January 2001). I-80 has a concept LOS E from the Solano/Yolo County line to Sacramento County. The concept report identifies this segment of I-80 as currently operating at LOS E during peak hours based on average weekday traffic volumes throughout the year, and indicates that the LOS is expected to decline to LOS F by 2020. The concept report states that the following improvements will provide a 20-year concept LOS E: (1) construct HOV lanes (one in each direction); (2) increase Yolo County bus service; (3) increase Yolobus service; (4) implement Smart Corridor Technology; and (5) implement Traffic Operation Systems such as ramp metering and changeable message signs.

Yolo County Congestion Management Program (Yolo County Transit Authority March 1996). The purpose of the Congestion Management Program (CMP) is to improve the planning and decision-making relationship between land use, transportation and air quality. The CMP provides routing standards for the existing public transit routes of Yolobus, Unitrans, West Sacramento and Woodland Senior and Disabled Demand Responsive, Davis Community Transit, and Davis Senior Transit. For transit, LOS standards are established based on frequency of service, reliability, and density. Unitrans has a CMP standard of LOS C for service frequency to Sycamore Lane, Drake Drive, West Davis, and Anderson Road, LOS D for service frequency in other areas, and LOS C for reliability and density.

The CMP also provides LOS standards for roadways. LOS standards are not adopted for intersections. The existing LOS and CMP LOS standards for roadways in Davis are shown in Table 4.14-12.
### Table 4.14-12

**Yolo County CMP System and Levels of Service Standards**

<table>
<thead>
<tr>
<th>Segment</th>
<th>From</th>
<th>To</th>
<th>CMP Standard</th>
<th>CMP LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>B Street</td>
<td>First Street</td>
<td>Fifth Street</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td>Covell Boulevard</td>
<td>West City Limits</td>
<td>State Highway 113</td>
<td>D</td>
<td>B</td>
</tr>
<tr>
<td>Covell Boulevard</td>
<td>State Hwy 113</td>
<td>Pole Line Road</td>
<td>E</td>
<td>F&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Covell Boulevard</td>
<td>Pole Line Road</td>
<td>I-80</td>
<td>D</td>
<td>B</td>
</tr>
<tr>
<td>First Street</td>
<td>B Street</td>
<td>Richards Boulevard</td>
<td>E</td>
<td>D</td>
</tr>
<tr>
<td>Pole Line Road</td>
<td>Covell Boulevard</td>
<td>North City Limits</td>
<td>D</td>
<td>A</td>
</tr>
<tr>
<td>Richards Boulevard</td>
<td>First Street</td>
<td>I-80</td>
<td>E</td>
<td>F&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Russell Boulevard</td>
<td>State Highway 113</td>
<td>B Street</td>
<td>E</td>
<td>B, D</td>
</tr>
<tr>
<td>State Highway 113</td>
<td>City Limits</td>
<td>City Limits</td>
<td>E</td>
<td>B</td>
</tr>
<tr>
<td>I-80</td>
<td>Solano County</td>
<td>Richards Boulevard</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td>I-80</td>
<td>Richards Boulevard</td>
<td>Olive Drive</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td>I-80</td>
<td>Olive Drive</td>
<td>Mace Boulevard</td>
<td>E</td>
<td>F</td>
</tr>
<tr>
<td>I-80</td>
<td>Mace Boulevard</td>
<td>County Road 32</td>
<td>E</td>
<td>F</td>
</tr>
</tbody>
</table>

Notes: LOS based on daily roadway volumes.

- The CMP states that improvements to roadway were under contract in 1996.
- The CMP states that improvements to roadways were under study in 1996.

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**1999 Solano Congestion Management Program** (Solano Transportation Authority October 1999). The 1999 Solano Congestion Management Program (CMP) includes LOS standards for roadways within Solano County. The CMP states that the minimum LOS standard throughout the system shall be E, except at those locations where the initial LOS measurement (calculated for the 1991 CMP) was already at F.

The CMP identifies the eastern portion of I-80 in Solano County operating at LOS E.

**State of California, County of Yolo Bikeway Plan** (Yolo County Transportation Advisory Committee 1993). The County of Yolo Bikeway Plan shows existing and future bikeways in Yolo County. Some of the relevant planning and implementation policies contained in the plan are listed below.

- Commuter bicycling facilities have higher priority than recreational facilities. Commute bicycling trips are any trip with a utilitarian purpose such as work, school, shopping, and appointments. Class II bikeways (bike lanes contiguous to roadways) shall be the generally preferred facility in areas of developed roadways, primarily to serve commuters. Class I bikeways (bicycle paths separated from roadways) shall be the generally preferred facility in areas without roadways, primarily to serve recreational bicyclists.

- The County will continue to require planned residential, commercial, and industrial developments to include bicycle facilities in their plans. Rights-of-way on collector streets and minor streets should be adequate for bikeways. Pathways should also be provided for bicycle and pedestrian use through cul-de-sac and loop streets where such access will encourage bicycle and pedestrian travel.
• Bikeways shall be constructed and marked in conformance with State standards, as outlined in Chapter 1000 of the Caltrans Highway Design Manual, Bikeway Planning and Design, July 1, 1990.

**Yolo County Short Range Transit Plan** (Sacramento Area Council of Governments 1997). The Yolo County Short Range Transit Plan addresses transit goals/policies between cities in Yolo County (e.g., Davis). The goals and objectives relevant to transportation systems near the campus are listed below.

- **Goal 1**: Improve local and regional mobility through coordination and integration of all Yolo County transit systems.
  - Objective 1A: Coordinate systems through a primary timed transfer facility in Davis.
  - Objective 1B: Coordinate Yolobus schedules with other system’s schedules (UNITRANS, Amtrak, CITYLINK), to meet at major transfer locations. Coordinate transfer/fare policies.

- **Goal 2**: Provide a transit system that is effective in meeting the needs of the community.
  - Objective 2A: Provide convenient transit service.
  - Objective 2B: Provide reliable transit service.
  - Objective 2C: Provide safe transit service.
  - Objective 2D: Provide attractive services, which respond to market demands for transportation.

**Sacramento Council of Governments Blueprint Program (SACOG 2004)** The SACOG Board of Directors adopted the Preferred Blueprint Scenario in December 2004, as a guide for regional development in the Sacramento area that promotes compact, mixed-use development and more transit choices as an alternative to low density development. The Sacramento Metropolitan Transportation Plan for 2035 seeks to implement the principles of the Blueprint Scenario. These planning efforts as well as the other planning efforts led by SACOG are directed at regional improvements and would have no specific impact on the facilities related to the proposed project.

**City of Davis General Plan Update** (City of Davis 1999). The City of Davis General Plan Update addresses goals and policies for roads, transit and bike/pedestrians.

The City of Davis General Plan Update sets LOS standards as listed below.

- Unless preempted by the County Congestion Management Plan, LOS E for automobiles is sufficient for arterials and collectors (both intersection and segment operations) during peak traffic hours (e.g. rush hour). LOS D for automobiles is sufficient for arterials, collectors and major intersections during non-peak traffic hours. LOS F is acceptable during peak hours in the Core Area.

- Davis streets shall have no more than four through automobile lanes, plus a single left-hand turning lane, even if this requirement reduces LOS. Additional turning lanes may be added for safety or design considerations.

The City of Davis General Plan Update recommends dedicated bicycle and pedestrian facilities to increase walking and the use of non-polluting forms of transportation, including bicycles as listed below.
• Policy: Develop a continuous trail and bikeway network for both recreation and transportation that serves the Core, neighborhoods, employment centers, schools and other institutions, minimizes conflicts between pedestrians, bicyclists, equestrians, and automobiles, and that minimizes the impact on wildlife. Greenbelts and greenstreets should serve as the backbone of much of this network.

• Standards: There shall be no removal of existing bicycle lanes to add through traffic lanes.

• Actions: Enhance the safety, accessibility and coverage of the existing bicycle network, especially in the vicinity of UC Davis, schools, and recreation areas.
  – Work with the University in improving access routes through campus to connect with the open space network.
  – Plan bicycle route connections to neighboring communities. Coordinate planning on these facilities with Yolo and Solano counties, the City of Woodland, and their bicycle plans.
  – Establish charging stations for electric vehicles in public parking lots in accordance with the future growth in the number of electric vehicles.

The City of Davis General Plan Update also recommends reducing automobile use by improving transit service and encouraging transit use as listed below.

• Policy: Facilitate the provision of convenient, frequent, dependable, and efficient scheduled transit and demand-responsive transit for Davis residents.

• Standards: The greatest concentration of transit routes should be near high-density developments.

• Actions: Implement the Davis portion of the Yolo County Transit Plan.
  – Improve transit line coverage, frequency and seasonal regularity throughout the city and to adjacent cities, with particular emphasis on service to the core, employment centers, social services and institutions.
  – Continue to provide para-transit services. Cooperate with volunteer efforts to provide these services.

4.6.3 Standards of Significance

The impacts related to transportation, circulation and parking would be considered significant if they would exceed the following Standards of Significance:

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.

Cause an increase in the traffic that may be substantial in relation to the existing roadway capacity of the street system as indicated by LOS standards for congestion at intersections.

The addition of project traffic causing a LOS change from acceptable to unacceptable would have a significant impact. The following LOS thresholds apply to the study intersections.
- LOS D is the minimum acceptable LOS for UC Davis.
- LOS E is the minimum acceptable LOS for the City of Davis. LOS F is acceptable for the City of Davis Core Area.
- LOS E is the minimum acceptable LOS for I-80 and its associated interchanges.
- LOS C is the minimum acceptable LOS for SR 113 and its associated interchanges.

Congestion would also be a significant impact if it would exceed a LOS standard established by the county congestion management agency (or any affected agency or jurisdiction) for designated roads or highways.

- LOS E is the minimum acceptable LOS for roadways and intersections in Solano County.
- LOS E is the minimum acceptable LOS for I-80 and its associated interchanges between the Solano County limit and Olive Drive.
- LOS E is the minimum acceptable LOS for SR 113 and its associated interchanges within the Davis city limits.
- LOS E is the minimum acceptable LOS for Russell Boulevard between SR 113 and B Street.
- LOS E is the minimum acceptable LOS for Richards Boulevard between First Street and I-80.
- LOS E is the minimum acceptable LOS for First Street between B Street and Richards Boulevard.
- LOS E is the minimum acceptable LOS for B Street between First Street and 5th Street.

Similarly, project impacts would be significant if they would 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.

Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

These standards of significance have been updated by the revisions to Appendix G of the CEQA Guidelines.

### 4.6.4 LRDP Mitigation Measures Included in the Proposed Project

Mitigation measures in the 2003 LRDP EIR that are applicable to the proposed project are presented below. Since these previously adopted mitigation measures are already being carried out as part of implementation of the 2003 LRDP, they are included in and are a part of the proposed project and will not be readopted.

#### 2003 LRDP EIR Mitigation Measures

**TRANSPORTATION, CIRCULATION, & PARKING**

- **4.14-1(a)** UC Davis shall continue to actively pursue Transportation Demand Management strategies to reduce vehicle-trips to and from campus.
- **4.14-1(b)** UC Davis shall continue to monitor AM and PM peak hour traffic operations at critical intersections and roadways on campus.
- **4.14-1(c)** UC Davis shall review individual projects proposed under the 2003 LRDP as they advance through the environmental clearance phase of development to determine if intersection or roadway improvements are needed with the additional traffic generated by the proposed project. If intersection operations are found to degrade to
2003 LRDP EIR Mitigation Measures
TRANSPORTATION, CIRCULATION, & PARKING

unacceptable levels, UC Davis shall construct physical improvements such as adding traffic signals or roundabouts at affected study intersections.

4.14-2(a) UC Davis shall continue to actively pursue Transportation Demand Management strategies to reduce vehicle-trips to and from campus.

4.14-2(b) UC Davis shall continue to monitor AM and PM peak hour traffic operations at critical intersections and roadways in the campus vicinity at least every three years to identify locations operating below UC Davis, City of Davis, Yolo County, Solano County, or Caltrans LOS thresholds and to identify improvements to restore operations to an acceptable level.

4.14-2(c) UC Davis shall review individual projects proposed under the 2003 LRDP as they advance through the environmental clearance phase of development to determine if intersection or roadway improvements are needed with the additional traffic generated by the proposed project. If intersection operations are found to degrade to unacceptable levels, UC Davis shall contribute its fair share towards roadway improvements at affected study intersections.

4.6.5 Project and Cumulative Impacts and Mitigation Measures

Impacts Adequately Analyzed in the 2003 LRDP EIR or Not Applicable to the Project

As determined in the Tiered Initial Study for the project, the potential impacts related to Transportation, Circulation, and Parking were analyzed in the 2003 LRDP EIR. Since adoption of the 2003 LRDP EIR, the Appendix G Checklist from the CEQA Guidelines has been amended and the Initial Study indicated that the revisions to the checklist would be evaluated in the EIR. The Tiered Initial Study found that the 2003 LRDP EIR Mitigation Measures 4.14-1 (a-c) and 4.14-2(a-c) are relevant to and are part of the proposed project and reduce the potential impacts of the proposed project to the extent feasible. (Please refer to pages 87-88 of the Tiered Initial Study (Appendix A). The 2003 LRDP EIR Mitigation Measures 4.14-1 (a-c) and 4.14-2(a-c) are provided above in Section 4.6.4.

Project-Level Impacts

Impact TRA-1: The proposed project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the on-campus circulation system. (Less than Significant)

The 2003 LRDP EIR found that implementation of the 2003 LRDP, including the proposed project, would cause unacceptable intersection operations at on-campus intersections (LRDP Impact 4.14-1). Previously adopted, LRDP Mitigation 4.14-1(a-c), included in the proposed project, requires that the campus continue to pursue Transportation Demand Management strategies to reduce vehicle-trips, monitor peak hour traffic operations at critical locations, review individual projects to determine if intersection operations will degrade to unacceptable levels, and implement physical improvements when intersection operations degrade. The 2003 LRDP EIR found that additional vehicle trips under the 2003 LRDP would cause the LOS at 10 on-campus intersections to drop below acceptable levels.

The proposed project would result in an employee population increase of at the CNPRC approximately 25 people. The CNPRC is located approximately 2 miles west of the central campus at UC Davis and is accessed by County Road 98 and Hutchison Drive which are the primary roadways serving the CNPRC.
Vehicle trips by the proposed project are expected to contribute to additional traffic at intersections along County Road 98, Hutchison Drive, Russell Boulevard, and State Route 113. For purposes of this analysis, it is assumed that all of the new employees would drive to work and that the increase in 25 people is expected to result in a range of 50 to 100 additional vehicle trips per day in and out of the CNPRC. During morning hours, the additional trips would consist of employees arriving at work, additional delivery trips caused by operation of the new facility, and employees leaving the CNPRC for personal errands or off-site work trips to location such as the central campus or to off-site locations. During the afternoon and evening hours, the additional trips would consist of employees leaving work and similar deliveries and errands as the morning trips.

Recent traffic monitoring was conducted in 2008 and determined that all campus intersections are operating acceptably. At the time of the 2008 traffic monitoring, many campus locations had experienced decreased traffic since 2005, and intersection levels of service were similarly improved at some locations. The addition of 50 to 100 additional trips per day is not expected to degrade levels of service. The traffic volumes monitored in 2008 show that the campus has adequately improved campus roadways to accommodate projected traffic levels and that continued campus growth that is consistent with the 2003 LRDP can be supported by the existing infrastructure. The project would contribute to LRDP Impact 4.14-1 and the campus continues to implement LRDP Mitigation 4.14-1(a-c) to minimize impacts to area roadways with ongoing infrastructure improvements that will be triggered when future monitoring shows that campus growth has started to affect particular intersections.

**Mitigation Measures:** No mitigation required

**Impact TRA-2:** The proposed project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the off-campus circulation system. *(Significant and Unavoidable)*

The 2003 LRDP EIR identified that implementation of the 2003 LRDP would cause unacceptable intersection and freeway operations off-campus (LRDP Impact 4.14-2). Previously adopted LRDP Mitigation 4.14-2(a-c), included in the proposed project, requires that the campus continue to pursue Transportation Demand Management strategies to reduce vehicle-trips, monitor peak hour traffic operations at critical locations, review individual projects to determine if operations will degrade to unacceptable levels, and contribute fair share costs to roadway improvements if operations degrade.

As discussed above, the campus monitored traffic levels in 2008. As with on-campus locations, the 2008 monitoring found that off-campus intersections and roadway segments were operating acceptably, and that no roadway improvements were necessary. The monitoring included locations at County Road 98, Russell Boulevard, Hutchison Drive, and State Route 113 which are the primary roadways serving the CNPRC. The project would contribute to LRDP Impact 4.14-2 and the campus continues to implement LRDP Mitigation 4.14-2 (a-c) with on-going efforts at transportation demand management, roadway monitoring, and contributing to a fair share for roadway improvements necessitated by on-going LRDP growth to minimize impacts to area roadways. The 2003 LRDP EIR found that the implementation of LRDP Mitigation 4.14-2 would reduce the transportation impacts, but that the impacts could remain significant and unavoidable because the campus cannot guarantee that other jurisdictions will actually proceed with the off-campus roadway improvements that would minimize the effects of campus growth.
Mitigation measures were included in the LRDP EIR to reduce the magnitude of LRDP project-level impact 4.14-2, but this impact is identified as significant and unavoidable because mitigation falls within other jurisdictions to enforce and monitor and therefore cannot be guaranteed by the University of California.

**Mitigation Measures:** No additional mitigation within the responsibility and jurisdiction of the University is feasible.

**Impact TRA-3:** The proposed project would not 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? (**Significant and Unavoidable**)

The proposed project is a portion of the growth evaluated in the 2003 LRDP EIR and is consistent with the 2003 LRDP. The 2003 LRDP considered traffic impacts significant if the overall LRDP growth caused conflicts with applicable congestion management programs. Impact 4.14-2 in the 2003 LRDP EIR found that the 2003 LRDP growth could result in significant impacts to facilities covered in the Yolo County and Solano County Congestions Management Plans. Impact 4.14-2 included LRDP Mitigation 4.14-2(a) for UC Davis to reduce trip generation, LRDP Mitigation 4.14-2(b) for UC Davis to monitor traffic operations, and LRDP Mitigation 4.14-2(c) for UC Davis to contribute a fair share percentage to improve roadway operations at affected locations.

Pages 4.14-72 through 4.14-77 of the 2003 LRDP EIR contains a detailed evaluation of the impacts and specific improvements that are part of the LRDP growth and mitigation program. The 2003 LRDP EIR concluded that the feasibility and/or implementation of some LRDP Mitigation Measure 4.14-2(c) cannot be guaranteed by UC Davis because implementation of mitigation measures at these off-campus facilities is under other jurisdictions that may elect to not implement recommended mitigation measures. Mitigation measures were included in the LRDP EIR to reduce the magnitude of LRDP project-level impact 4.14-2, but this impact is identified as significant and unavoidable because mitigation falls within other jurisdictions to enforce and monitor and therefore cannot be guaranteed by the University of California.

**Mitigation Measures:** No additional mitigation within the responsibility and jurisdiction of the University is feasible.

**Impact TRA-4:** Implementation of the proposed project would not conflict with alternative transportation planning efforts. (**No Impact**)

The revision to Appendix G, Section XVI, item (g) expanded the scope of the CEQA environmental impact analysis after the completion of the 2003 LRDP EIR by instructing lead agencies to examine both the potential conflict with adopted transit, bike, or pedestrian facility plans and the potential for a proposed project to decrease the performance or safety of transit, bike, or pedestrian facilities. The
The proposed project would not result in any conflicts with transit, bike, or pedestrian planning efforts. While the project would add approximately 25 persons to the CNPRC population, the additional population at the CNPRC is consistent with the UC Davis 2003 LRDP. The UC Davis 2003 LRDP includes future plans for roadways, transit, bike, and pedestrian facilities and is the guiding document for transportation planning at UC Davis. The proposed project is located in an area that is not planned for additional transportation facilities in the 2003 LRDP, and the proposed project would not conflict with the implementation of the 2003 LRDP.

The proposed project would not decrease the performance or safety of transit, bike or pedestrian facilities. The performance of transit facilities would not be affected by the proposed project because transit service is not provided to the CNPRC. Pedestrian facilities are not connected to the CNPRC from outside of the developed CNPRC area. Accordingly, off-site pedestrian facilities near the CNPRC such as the combined pedestrian/bike path along Russell Boulevard would not be affected by the proposed project. Bike facilities do connect to the CNPRC through the on-street bike lanes that extend from Hutchison Drive to La Rue Road in the central campus at UC Davis. These on-street bike lanes receive minimal use and could serve a greatly expanded population at the CNPRC if needed. These bike lanes are characterized as having 10 to 20 riders per hour and could accommodate volumes exceeding 10 to 20 riders per minute. Accordingly, the minor population increase at the CNPRC from the proposed project would not affect the performance of the existing bike facilities. No impact would occur.

**Mitigation Measures:** No mitigation required.

### 4.5.7 References


4.7 UTILITIES AND SERVICE SYSTEMS

4.7.1 Background

Section 4.15 of the 2003 LRDP EIR addresses the effects of campus growth on utility systems under the 2003 LRDP. The campus provides the following utility and service systems to campus projects:

- Domestic/Fire Water
- Utility Water
- Agricultural Water
- Storm Drainage
- Wastewater
- Solid Waste
- Chilled Water
- Steam
- Electricity
- Natural Gas
- Telecommunications

The Initial Study found that, except for wastewater, the project impacts were adequately addressed in the 2003 LRDP EIR. The following section focuses on potential impacts to wastewater facilities from implementation of the proposed project.

UC Davis operates a campus wastewater conveyance and treatment system that is independent from regional facilities. The campus Wastewater Treatment Plant (WWTP) is located in the south campus, and treated effluent from the plant discharges to the Arboretum Waterway or directly into Putah Creek. The peak month capacity of the campus WWTP, as regulated under the existing NPDES permit issued by the CVRWQCB, is 3.6 mgd average dry weather month. Relative to this permit limit, the highest monthly average flow in 2009 was 1.8 mgd. The average flow for 2009 was 1.6 mdg and the highest daily flow was 3.0 mgd (Phillips, personal communication).

Relocation of an existing 8-inch main line is necessary to accommodate placement of the proposed building footprint. The proposed point of connection would be at a new manhole on the northeast side of the project site. The existing CNPRC sewer system has exceeded its capacity and upgrading sewer lift station SSLS-10 is necessary to accommodate the new building load.

4.7.2 Standards of Significance

The impacts related to utilities 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:

- Exceed the Central Valley Regional Water Quality Control Board’s wastewater treatment requirements.
- Require or result in the construction or expansion of water or wastewater treatment facilities, which would cause significant environmental effects.
- Require or result in the construction or expansion of storm water drainage facilities, which could cause significant environmental effects.
- Result in the need for new or expanded water supply entitlements.
- Exceed available wastewater treatment capacity.
- Be served by a landfill with insufficient permitted capacity to accommodate the project’s solid waste disposal needs.
• Fail to comply with applicable federal, state, and local statutes and regulations related to solid waste.
• Require or result in the construction or expansion of electrical, natural gas, chilled water, or steam facilities, which would cause significant environmental impacts.
• Require or result in the construction or expansion of telecommunication facilities, which would cause significant environmental impacts.

4.7.3 Project Impacts and Mitigation Measures

Impacts Adequately Analyzed in the 2003 LRDP EIR or Not Applicable to the Project

As summarized in the Tiered Initial Study for the project, potential impacts to Utilities and Service Systems were addressed in the 2003 LRDP EIR and the 2003 LRDP EIR included mitigation measures to further reduce the significance of certain impacts. The Tiered Initial Study found that LRDP Impacts 4.15-3, 4.15-6, and 4.15-10 and corresponding LRDP Mitigation Measures 4.15-3, 4.15-6(a), 4.15-6(b), and 4.15-10, which were adopted and incorporated into the LRDP, are relevant to the proposed project and reduce the significance of utilities and service system impacts to the extent feasible. Pages 90 to 96 of the Tiered Initial Study (Appendix A) contain the full text of these impacts and mitigation measures and include explanations of the relevance of each impact to the proposed project. The Tiered Initial Study further explains that analysis would be conducted in this Tiered Draft EIR for potential impacts related to the upgrade of wastewater facilities (sanitary sewer lift station) to evaluate the potential environmental impacts of constructing the necessary upgrade.

Project-Level Impacts

Impact Util-1: Implementation of the proposed project would require the construction of improved wastewater treatment (upgrade of a lift station) to serve the project but the construction would be minor and would not result in significant impacts. (Less than Significant)

The proposed project would increase the generation of wastewater sent to the campus wastewater treatment system. Wastewater from the CNPRC is conveyed through campus infrastructure to the campus wastewater treatment plant. The existing piping and the treatment plant are adequate to serve the proposed project, but the campus lift station that serves the CNRPC would need to be upgraded with a larger capacity pump and valve upgrades. The necessary construction would take place within the existing lift station. The project would not require the extension of any access roads or electrical lines to serve the construction area. During installation of the new equipment, the lift station would be operated using the secondary pump, and no disruptions to service are expected. This impact is considered less than significant. No mitigation measures are needed.

4.7.4 Cumulative Impacts and Mitigation Measures

All of the cumulative impacts of campus growth, including the proposed project, are adequately addressed in the 2003 LRDP EIR. There are no changes in circumstances that require a reevaluation of the previously evaluated cumulative impacts. As noted above, the proposed lift station improvements would result in less than significant impacts. No further analysis of cumulative impacts on utility systems is required.
5 OTHER CEQA REQUIRED SECTIONS

5.1 GROWTH-INDUCING IMPACTS

As required by CEQA, an EIR must discuss the ways in which the proposed project could directly or indirectly foster economic or population growth or the construction of additional housing and how that growth could, in turn, affect the environment (CEQA Guidelines Section 15126[g]). Growth can be induced in a number of ways, including by eliminating obstacles to growth and stimulating economic activity outside of the project. Potential growth inducement from the proposed project would not occur because the project would not eliminate a physical or institutional obstacle to additional growth, and because the project would not stimulate economic activity beyond the activity caused by the proposed project. Under CEQA, induced growth is not necessarily considered beneficial or detrimental. Induced growth is considered a significant impact only if it has a significant effect on the environment. Because the project is not expected to induce growth, no significant effects on the environment are expected from growth inducement.

5.2 SIGNIFICANT AND UNAVOIDABLE IMPACTS

CEQA requires that an EIR identify any significant impacts that cannot be reduced to a less than-significant level through mitigation (CEQA Guidelines Section 15126.2[b] and Public Resources Code Section 21000[b]). The proposed project would not cause any project-level significant and unavoidable environmental impacts, but would contribute to significant and unavoidable cumulative impacts. As described in Section 7.18 of the Tiered Initial Study (Appendix A, p.98), the proposed project would not impact and would not contribute to a significant unavoidable cumulative impacts identified in the 2003 LRDP EIR related to: aesthetics, agriculture resources, biological resources, cultural resources, population and housing, public services, recreation, and utilities and service systems. It would incrementally contribute to, but would not exceed, significant and unavoidable impacts related to: air quality, cultural resources, hydrology and water quality, noise, population and housing, public services, recreation, transportation/circulation, and utilities and service systems. These impacts were adequately analyzed in the 2003 LRDP EIR and fully addressed in the Findings and Statement of Overriding Considerations adopted by The Regents in connection with its approval of the 2003 LRDP. No conditions have changed and no new information has become available since certification of the 2003 LRDP EIR that would alter this previous analysis.

5.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

The CEQA Guidelines (Section 15126.2[c]) require that an EIR discuss the extent to which a project, during its initial or continued phases (i.e., construction and operations), would result in commitment of nonrenewable resources that future generations would be unable to reverse. An impact would fall into this category if:

- The project would involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of a project would generally commit future generations to similar uses (e.g., a highway provides access to a previously remote area);
- The project involves uses in which irreversible damage could result from any potential environmental accidents associated with the project; or
• The phasing of the proposed consumption of resources is not justified (e.g., the project involves the wasteful use of energy).

The proposed project would be constructed at the site of the existing CNPRC and be served by existing campus roadways. The proposed project would not require the conversion of any land beyond what was previously committed for the existing CNPRC, as analyzed in the 2003 LRDP EIR.

Implementation of the proposed project would result in an irreversible commitment of energy resources, primarily in the form of fossil fuels, including fuel oil, natural gas, and gasoline for construction equipment and operations. The consumption or destruction of other nonrenewable and slowly renewable resources would also result during construction and operation of the proposed project. These resources include, but are not limited to, lumber, sand, gravel, asphalt, metals, and water. The irretrievable commitment of the above-listed resources is considered justified to achieve the overall goals and objectives of the proposed project.
6 ALTERNATIVES

6.1 ALTERNATIVES DESCRIPTION

Section 15126.6 of the CEQA Guidelines require an evaluation of “a range of reasonable alternatives to the project, or the location of the project, which would feasibly attain most of the basic project objectives but would avoid or substantially lessen any of the significant effects, and evaluate the comparative merits of the alternatives.” The purpose of the alternatives analysis is to determine whether a variation of the proposed project would reduce or eliminate significant project impacts in the basic framework of the project’s objectives. The alternatives analysis must compare the alternatives to the proposed project. The focus and definition of the alternatives evaluated in this Draft EIR is governed by the “rule of reason” in accordance with Section 15126.6(f) of the CEQA Guidelines requiring evaluation of only those alternatives “necessary to permit a reasoned choice.” Further, an EIR “need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative.”

The objectives of the proposed project are to:

- Address significant facility deficiencies at the CNPRC for both laboratory space and animal holding space for pulmonary research;
- Provide expanded laboratory and office space at the CNPRC to co-locate UC Davis and off-site respiratory disease researchers in one secure location to facilitate increased collaboration;
- To create additional laboratory space for the recruitment of new scientists at the CNPRC;
- Provide a facility with a clean filtered air room and a room with metabolism cages for animal holding;
- Provide additional space and capabilities necessary to accommodate the growing CNPRC pulmonary function laboratory; and
- Construct the new building with features that will allow it to achieve a high level of energy efficiency.

A two-step process was used to conduct the alternatives analysis in this Draft EIR. First, potential alternatives were examined for their feasibility and ability to meet most of the basic project objectives. Those that clearly were found to be infeasible were rejected without further environmental review. Alternatives that may be feasible and that would attain most of the basic project objectives were carried forward and analyzed with regard to whether they would reduce or avoid significant impacts of the project. The alternatives considered but rejected are discussed in Section 6.2. The alternatives carried forward for analysis are discussed in Section 6.3. The CEQA Guidelines also requires that the “environmentally superior alternative” be identified in the EIR. Section 6.4 identifies the environmentally superior alternative.

6.2 ALTERNATIVES CONSIDERED BUT REJECTED

This section presents an analysis of alternatives that were considered for the CNPRC Respiratory Diseases Center Project but were rejected because they would not meet basic project objectives, and/or were determined to be infeasible for technological, environmental, legal, social, or other reasons.

6.2.1 Computer Based Research

Under this alternative, the amount of laboratory space that is presently needed or would be needed in the future for CNPRC physical research would be reduced and replaced with computer based research. The necessary computers could be located within existing space and no construction effort would be needed to support this alternative. This alternative would be implemented using a combination of two basic...
computer techniques. The first technique would consist of using computing resources to better assimilate, synthesize, and process prior biological research that has occurred throughout the world and is now more accessible through internet databases. The second technique would consist of using and developing more complex computer models that can either predict outcomes or focus the types of research that are needed to predict outcomes of biological interactions using computer models. To the extent that these two techniques could be used successfully in combination, the existing laboratory space at the CNPRC could then be used to conduct the research that is not otherwise able to be completed using computer based research.

Bio-informatics, or the use of computers to assimilate, process, analyze and disseminate biological research information on a global scale, is already an indispensable tool for performing advanced biomedical research at the CNPRC, allowing for the analysis of massive amounts of data generated in the course of biological, often laboratory-based, experiments. Computational biology, or computer modeling, is a related but distinct analytical tool allowing the generation of new data based on experiments incorporating the results of previous experiments. To be useful, computer models must be based on data generated from observations of complex biological systems. Even the most sophisticated technology cannot mimic the complex interactions among pathogenic organisms, cells, tissues and organs. While computer modeling can often serve as an adjunct to other forms of laboratory research, including in vitro methods such as cell and tissue culture, modeling cannot replace them. Any predictions of outcomes or interactions generated by computer models would still require verification in biological systems. Just as a flight simulator is no substitute for actually flying, computational biology cannot replace laboratory research. Rather, the goal of computational biology is to make laboratory research more efficient by eliminating numerous preliminary steps by guiding decisions and identifying the most critical experiments to perform in the laboratory.

This alternative is infeasible because it would not allow researchers to conduct the types of research that are needed to fully evaluate the complex biological interactions that can occur during research with organisms being exposed to new chemicals in varying amounts and protocols. Additionally, the alternative of conducting computer based research was rejected because the chance of success (producing scientifically valid and meaningful results) comparable to the research that would be conducted in the proposed building was considered remote and speculative.

6.2.2 Construction at Non-UC Davis Location

This alternative would involve purchasing land and constructing the proposed facilities at a non-UC Davis location. The alternative would be very similar to the proposed project except that: 1) the facility would not be constructed adjacent to the research facilities and offices that are within the CNPRC area; and 2) the project would be more expensive because of land acquisition costs that would either include costs for previously installed infrastructure (e.g., roads, sewer, flood control, utilities, etc.) but could also necessitate expenditures for required infrastructure if the infrastructure has not been previously provided. A site for potential acquisition has not been identified, but because of the size of UC Davis land surrounding the CNPRC and the rural nature of land surrounding the UC Davis land, any potential land acquisition is assumed to be 1 to 2 miles from the CNPRC and could be much further (potential sites in the City of Davis would be at least 2 to 4 miles away).

This alternative could have additional environmental impacts because of increased construction impacts (noise, air quality, water runoff, etc.) stemming from the provision of the basic infrastructure. This alternative would not meet the basic project objective of co-locating researchers who are currently working in separate buildings within the CNPRC developed area. Rather than providing the desired co-location, this alternative would not meet the stated project objectives because the researchers would have
two work locations—their existing offices and administrative spaces within the CNPRC and the new research laboratories that would be constructed at a non-UC Davis location. Working in two locations would require increased travel and this alternative would include increased air quality, greenhouse gas traffic, and noise impacts than the proposed project.

This alternative was rejected as infeasible because it would establish an off-site location that researchers would need to travel to in order to conduct the desired research and the need to travel to the offsite location would severely limit the ability of researchers to efficiently conduct the research.

6.3 Alternatives Evaluated in Detail

6.3.1 No Project – No Build

CEQA Guidelines Section 15126.6 states that an EIR’s “no project” analysis should discuss what would reasonably be expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and public services. Under the No Project—No Build alternative, UC Davis would continue to use existing research facilities at the CNPRC. The campus would not construct the proposed building or modify the existing facilities and would not add 25 employees at the CNPRC. The no project alternative would not enable the campus to recruit, correct space and technological deficiencies, promote research synergies, or accommodate visiting scholars – all of which are project objectives.

The No Project—No Build alternative would not meet the basic project objectives. To maximize the use of existing facilities, CNPRC researchers have previously instituted laboratory modifications and protocols to increase efficiency and, where possible, reduce the space available to each researcher. Under this alternative, the continued use of existing facilities would mean that research space at the CNPRC would remain inadequate in terms of the amount of available space and inadequate in terms of the design features to support respiratory disease research. While some research could be expanded through the potential use of staggered work shifts to utilize the existing space during off-hours, the actual increase in research that could be achieved through such changes would be very small and would be relatively expensive due to inefficiencies that would result from increased set-up and laboratory preparation at the start and end of each work shift. In addition, some research would require materials to be left in place and not disturbed for periods exceeding eight hours. If a second shift were to utilize the work space of the first shift, the research materials that would be left in place from the first shift would reduce the available space for the second shift. The effect of this could be to limit the types of research experiments that scientists would conduct.

Compared to the proposed project, the No Project-No Build alternative would have reduced environmental impacts because no construction would take place and the construction related impacts identified in the Tiered Initial Study (such as impacts to air quality from construction vehicle emissions) would not occur.

This alternative is infeasible because it would not meet the project objectives, would result in insufficient research laboratory space, would result in the inefficient use of campus finances because of the increased expenses of staff time that would be needed to support the inefficient second shift use of research laboratories, and could limit the types of research experiments at the CNPRC.
6.3.2 Construction at Alternative UC Davis Locations

This alternative would construct the same facilities as the proposed project. Rather than constructing these facilities at the CNPRC, the buildings would be located elsewhere at UC Davis and could be placed within the Central Campus, South Campus, or West Campus areas. For this alternative, it is assumed that within the Central Campus, South Campus, or West Campus at UC Davis, an adequate building site could be located that would not need utility upgrades in order to adequately serve the proposed building.

For most environmental resource areas, this alternative would have similar environmental impacts to the proposed project and would be expected to have similar project costs. The distance between the CNPRC and a possible alternative location would require increased travel between the CNPRC and the building location. The increased travel would result in additional vehicle trips on area roadways and additional air emissions from those vehicles. Consequently, this impact would be expected to have increased environmental impacts as compared to the proposed project.

This alternative is considered infeasible because while it would meet most of the project objectives but it would fail to meet a key project objective of co-locating researchers within the CNPRC area. This alternative would require researchers to conduct work in two different locations by providing off-site laboratory facilities and retaining office and administrative space within the CNPRC developed area.

6.3.3 Construction of Reduced Facilities

This alternative would involve construction of a smaller building than the proposed project. The key elements of this alternative would be to construct a single building of only 12,000 gsf instead of the proposed 20,000 gsf and to conduct a reduced amount of research.

This alternative would have similar environmental effects to the proposed project but at a lower intensity because of the reduced construction impacts, a smaller increase in employee population, and a reduction in operational impacts. The overall reduction in operational impacts would extend to the air quality, greenhouse gas emissions, hazards and hazardous materials impacts, transportation impacts, and utilities impacts evaluated in this EIR. Overall, the Construction of Reduced Facilities would result in the same types of impacts but at a reduced amount than the environmental effects of the proposed project. The project would require the same hazardous materials and bio-containment protocols as the proposed project and would not create any new environmental effects.

This alternative is considered infeasible because it would not fully meet the project objectives and would result in insufficient research laboratory space.

6.4 Environmentally Superior Alternative

CEQA requires identification of an environmentally superior alternative; that is, the alternative that has the least significant impacts on the environment. For the proposed project, the No Project-No Build Alternative would avoid all contributions to environmental impacts that were identified in the Tiered Initial Study and the Focused Tiered Draft EIR; however, it does not allow for the attainment of basic project objectives.

CEQA also requires that the build or action alternative with the fewest significant impacts be identified in the event that the No Project Alternative is the environmentally superior alternative. For this, the Construction of Reduced Facilities is considered the environmentally superior alternative. As stated
above, this alternative would have similar environmental effects to the proposed project but at a lower intensity because less construction would take place due to the reduction in the proposed building square footage from 20,000 gsf to 12,000 gsf. The alternative would result in a reduced amount of the desired research, a smaller increase to the employee population, and a reduction in operational impacts. Overall, the Construction of Reduced Facilities would result in decreased impacts compared to the proposed project and compared to the other action alternatives.
7 REFERENCES AND ACRONYMS/ABBREVIATIONS

References


California Environmental Protection Agency (Cal EPA), Climate Action Team. 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature.

Gas Emissions Pursuant to SB97.


**Acronyms/Abbreviations**

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<thead>
<tr>
<th>Acronym/Abbreviation</th>
<th>Description</th>
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<tr>
<td>ASF</td>
<td>assignable square feet</td>
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<td>AUCAAC</td>
<td>Animal Use and Care Administrative Advisory Committee</td>
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<td>BSL</td>
<td>Biosafety Level</td>
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<td>BUA</td>
<td>Biological Use Authorization</td>
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<td>CAPCOA</td>
<td>California Air Pollution Control Officers Association</td>
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<td>gsf</td>
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<td>HEPA</td>
<td>high-efficiency particulate air (filter)</td>
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8 AGENCIES & PERSONS CONSULTED
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Appendix A: UC Davis CNPRC Tiered Initial Study
Appendix B: Air Quality Calculation Details
Appendix C: Greenhouse Gas Emissions Calculation Details