

# UC Davis Respiratory Diseases Center

## Draft Environmental Assessment

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## **1.0 INTRODUCTION**

The National Institutes of Health (NIH) is proposing to partially fund the construction of a Respiratory Diseases Center (RDC) as part of the University of California, Davis (UC Davis) California National Primate Research Center (CNPRC), in Davis, California. The National Environmental Policy Act of 1969 (NEPA) requires that the NIH consider the environmental consequences of proposed actions before decisions are made. In complying with NEPA, NIH follows the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508) and NEPA Compliance Procedures of the U.S. Department of Health and Human Services (DHHS) General Administration Manual, Chapter 30 (Environmental Protection), as published in the Federal Register on February 25, 2000 (Federal Register, Vol. 65, No. 38, pages 10229-10284). This Environmental Assessment (EA) was prepared for the NIH and assesses the environmental consequences and potential impacts of the construction and operation of the proposed RDC.

### **1.1 Background**

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.

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.

## **1.2 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 California National Primate Research Center (CNPRC) is located in the west campus area of UC Davis. 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 proposed project site is an area of approximately 40,000 square feet 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, 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 Long Range Development Program (LRDP) for the campus.

### **1.3 Scope of the EA**

The NIH is required to perform NEPA reviews for any major action which may have a potentially significant impact on the quality of the human environment. This EA assesses the potential environmental consequences resulting from construction and operation of the proposed RDC.

This EA provides analysis of environmental issues in proportion to their potential effects as certain aspects of implementation of the construction and operation of the proposed CNPRC RDC have a greater potential for environmental effects than others, and therefore are discussed in greater detail in this EA. Chapters 1.0, 2.0, 3.0, and 4.0 are intended to provide sufficient detail so that the reader may understand the alternatives being analyzed and the direct as well as indirect effects of these alternatives which are provided in Chapter 5.0, Environmental Consequences.

UC Davis provided an environmental checklist as part of the original grant application for the proposed RDC to the NIH in 2010. After the NIH examined the proposal against the DHHS' Categorical Exclusion Criteria Checklist and the NIH's Environmental Assessment Criteria Checklist, it was concluded that the proposed RDC could not be excluded categorically and the proposed RDC required further analysis to determine whether any impacts exist and whether an Environmental Impact Statement would be necessary.

### **1.4 Relationship to Other Regulatory Activities**

The proposed RDC would be reviewed by other governmental agencies during certain permit and approval review processes. At the local and state levels, several permits may be required for the operation of the facility. Construction and air permits may be required from the Yolo-Solano Air Quality Management District (YSAQMD) for operational units such as back-up power generation, fueled boilers, exhaust ventilation and other air emission units associated with the facility.

## **2.0 PURPOSE AND NEED**

### **2.1 Purpose and Need for Agency Action**

The proposed facility will provide both on-site investigators from within the CNPRC and off-site investigators from other research institutions 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 Respiratory Diseases Unit (RDU) staff scientists will allow sharing of techniques, 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 addition of this new space will 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 between 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.

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;
- 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.

## **2.2 Public Involvement**

UC Davis evaluated the environmental impacts of the proposed project in complying with the California Environmental Quality Act (CEQA). A Tiered Initial Study (“Initial Study”) and Focused Tiered Draft EIR (“Draft EIR”) were prepared for the Project in accordance with CEQA allowing public and agency review of the proposed project.

The Tiered Initial Study was submitted to the State Clearinghouse in the California Governor’s Office of Planning and Research and circulated for a 30-day public review period beginning on June 30, 2010 and concluding on July 29, 2010. At the start of the comment period, a public notice was printed in the local newspaper, letters describing the project were sent to interested individuals, copies of documents were available in public libraries, and UC Davis posted the Initial Study on a campus website. During that time, the document was available for review by various state and local agencies, as well as by interested individuals and organizations. No comments were submitted during the 30-day Initial Study review period.

The Draft EIR was submitted to the State Clearinghouse in the Governor’s Office of Planning and Research and circulated for a 45-day public review period beginning on August 4, 2010 and concluding on September 20, 2010. During that time, the document was available for review by various state and local agencies, as well as by interested individuals and organizations. At the start of the comment period, a public notice was printed in the local newspaper, letters describing the project were sent to interested individuals, copies of documents were available in public libraries, and UC Davis posted the Initial Study on a campus website. No comments were submitted during the 45-day review period. In addition, a public hearing to allow comments on the project and the draft EIR was held on August 25, 2010 at the UC Davis. No members of the public or public agencies attended the public hearing and accordingly, no comments were received at the public hearing.



### **3.0 PROPOSED ACTION AND NO ACTION ALTERNATIVE**

#### **3.1 Proposed Action**

The National Institutes of Health has proposed to partially fund the construction of the Respiratory Diseases Center at the California National Primate Research Center in Davis, California.

##### ***3.1.1 Facility Site and Construction***

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. Primate colony cages are located to the north of the site across Primate Drive, 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.

UC Davis proposes to construct and operate a new primate respiratory disease research laboratory within the existing UC Davis California National Primate Research Center (CNPRC). The CNPRC is located on County Road 98 south of Russell Boulevard in Davis, in the west campus area of UC Davis. The proposed Respiratory Diseases Center project (the project) would be a 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 rooms, and mechanical and support areas.

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, within the CNPRC boundaries.

##### ***3.1.2 Facility Description and Operations***

The proposed building would be a one-story building with an overall size of approximately 20,000 gross square feet (GSF) built on a new foundation immediately north of the existing animal research building at the CNPRC. 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. The project would add approximately 25 faculty and staff to the campus population.

The building would provide space for an autoclave and would be designed to support Biosafety Level 2 protocols, which is appropriate where infectious disease research would not be a primary concern of the research at the facility.

The CNPRC's current strategic plan includes an emphasis on advancing translational research through the development of nonhuman primate models of disease. Once the RDC is built and the RDU vacates the space in the main building at the CNPRC, the CNPRC will use the vacated space from the RDU to recruit three physician 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 of existing space for those scientists.

The RDU currently utilizes non-human primates as part of the respiratory disease research program. Construction of the RDC will improve the facilities for the on-going use of animals in the research program. The improved facilities will improve the efficiency of handling and holding animals. The RDC will not increase the use of non-human primates by the RDU. Accordingly, the proposed project would not increase the population of non-human primates at the CNPRC.

### ***3.1.3 Safety and Security***

The proposed RDC would be designed to maximize safety, reliability, and effectiveness as well as apply the most stringent interpretation of Federal guidelines for the design and operation of biosafety facilities. Operation of the facility therefore represents minimal hazard to the community. All technical and maintenance staff would be trained in the safe operation of the facility. The facility will provide 100 percent redundancy for mechanical, electrical, and plumbing (MEP) systems as required by NIH guidelines and which are included in the approved 95 percent design drawings. All exhaust air from the containment areas of the building would be high efficiency particulate air (HEPA) filtered to assure that no harmful agents are released to the environment.

Safety training and educational programs would be provided to scientists, support, and maintenance staff by the UC Davis Office of Environmental Health and Safety (EH&S). EH&S performs 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 Certified Unified Program Agency (CUPA) Self-Audit Program, which complies with the terms of an agreement with the Yolo County Department of Environmental Health (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 Committees, 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.

UC Davis implements numerous administrative controls regarding laboratory safety, compliance and accountability. The Principal Investigator is charged with oversight of laboratory compliance with regard to research and environmental health and safety. Each researcher would be required to complete a web-based safety training program would before starting work in the facility. The safety training programs would cover general biosafety, hazardous waste, respiratory protection, radiation safety and occupational exposure to bloodborne pathogens. Following the general safety courses, each person would be required to complete agent-specific training that would advise the employee on both natural and experimental transmission of the agent, pathogenesis, and clinical signs seen in humans. In addition, training will be provided for high-risk activities such as handling animals, and for packaging and transporting potentially infectious agents or materials. The proposed RDC would be designed to maximize safety and security in the work area and surroundings. A security system designed in accordance with the NIH Physical Security Design Guidelines.

### ***3.1.4 Transportation***

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.

### ***3.1.5 Utilities and Infrastructure***

As discussed briefly below, 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 Respiratory Disease Center 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 on site and upgrading 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 to 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 immediate 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 Respiratory Disease Center 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 network 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 currently 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 Primate Center 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.

### **3.1.6 Waste Management**

Hazardous chemical and biohazardous waste must be managed in accordance with local, state, and federal regulations. EH&S and all generators of hazardous waste are responsible for the management of hazardous waste.

### **3.1.7 Facility Decontamination and Decommissioning**

When laboratories at UC Davis are to be relocated, renovated, vacated or closed, all chemical, radioactive, biological or other hazardous materials must be removed and disposed, in accordance with all applicable U.S. Environmental Protection Agency (EPA), OSHA, NIH, CDC and other regulations. Equipment and items that may pose a potential danger to the environment or public must be removed and properly destroyed. The decommissioning process involves a certification by the appropriate principal investigator, researcher, instructor, laboratory or clinical manager and an inspection by EH&S.

## **3.2 No Action Alternative**

The Respiratory Diseases Center would not be constructed at the California National Primate Research Center in Davis, California.

## **3.3 Alternatives Considered but Rejected**

### ***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. 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, 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 to conduct 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.

### ***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 action 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 may include costs for previously installed infrastructure (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, or 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 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 place researchers in 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.

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 this need to travel to the off-site location would severely limit the ability of researchers to efficiently conduct the program research.

### **3.4 Alternative Evaluated in Detail**

#### ***Construction of Reduced Facilities (Reduced Alternative)***

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 on the proposed project site instead of the proposed 20,000 GSF and to conduct a reduced amount of research.

## **4.0 AFFECTED ENVIRONMENT**

Chapter 4.0 describes the natural and human environment that could potentially be affected by the Proposed Action and the No Action Alternative. The description of the affected environment provides a basis for understanding the direct, indirect, and cumulative effects of the Proposed Action.

### **4.1 Geology**

The campus is located within the Putah Creek Plain of California's Great Valley geomorphic province. Except for the somewhat raised elevation along the levee adjacent to Putah Creek, the campus is topographically flat.

A series of low foothills, including the Dunnigan Hills, the Capay Hills, and the English Hills, lie approximately 20 miles west of the campus at the eastern base of the Coast Range. The presence of subsurface thrust faults within these regional foothills and within 100 miles of the campus indicates the potential for seismic ground shaking in the Davis region. The Davis region is not located within an Alquist-Priolo Fault Zone as defined in the Alquist-Priolo Earthquake Fault Zoning Act, which prohibits the construction of structures for human occupancy across active faults. According to the California Geological Survey's Probabilistic Seismic Hazard Assessment for the State of California, the peak ground acceleration with a 10 percent probability of being exceeded in 50 years is 0.2 to 0.3g on the central campus, increasing to 0.3 to 0.4g on the western portion of Russell Ranch (CDOC 1996). By comparison, in most parts of the San Francisco Bay Area, the peak ground acceleration is 0.5g or greater. Likely effects of ground shaking during a probable maximum intensity earthquake for the area could include structural damage to stucco, masonry walls, and chimneys, which could expose people to risks associated with falling objects and potential building collapse.

### **4.2 Soils**

Soils on campus generally contain a high amount of silt and clay, and as a result, are moderately to slowly permeable and have slow runoff rates, minimal erosion hazards, and moderate to high shrink-swell potential (the potential for soil volume to change with a loss or gain in moisture). The predominant soil constraint to construction on campus is soil shrink-swell potential.

### **4.3 Groundwater/Surface Water**

The campus is underlain by sand and gravel alluvial deposits that include deep and shallow/intermediate depth aquifers. Deep gravel and sand aquifers underlie the campus from 600 to 1,500 feet below ground surface and supply the campus domestic/fire system. Historic annual domestic water use on campus



over the past three decades has ranged from less than 600 million gallons per year (mgy) during drought conditions to nearly 900 mgy (UC Davis 1997). Despite the campus' significant growth in recent decades, the campus' deep aquifer demands have not significantly increased since the late 1960s (Ludorff and Scalmanini 2003), a trend that reflects the success of the campus' water conservation efforts.

Shallow/intermediate depth sand and gravel aquifers underlie the campus at depths from 150 to 800 feet below ground surface and supply the campus utility water system, main campus agricultural water needs, and campus and tenant farmer irrigation needs at Russell Ranch. Over the period from 1992 through 2002, an average of approximately 2,657 acre-feet per year (866 million gallons) of shallow/intermediate aquifer water was used for agricultural purposes on campus, including approximately 1,813 acre-feet (591 million gallons) on the main campus and approximately 844 acre-feet (275 million gallons) at Russell Ranch (UC Davis Agricultural Services 2003, UC Davis ORMP 2003c). Water levels in the shallow/intermediate aquifer vary seasonally and strongly correlate to precipitation. A generally upward recharge trend over the period from 1957 to 2002 indicates that there has not been long-term overdraft of the shallow/intermediate depth aquifers (Ludorff and Scalmanini 2003).

Regional groundwater quality is generally characterized as having high mineral content. Calcium, magnesium, and sulfates have been identified as the dominant problematic constituents.

The UC Davis campus is located in the Lower Sacramento watershed. Putah Creek, the principal waterway in the Davis area, originates from springs in the Mayacamas Mountains northwest of the campus, flows into Lake Berryessa, through Winters, along the southern boundary of Russell Ranch, along the southern boundary of UC Davis' west and south campuses, and eventually into the Yolo Bypass, an overflow channel for the Sacramento River.

UC Davis is a member of the Solano Project, a water project in the Sacramento River Valley that obtains water from Putah Creek, and currently has rights to purchase 4,000 acre-feet of Putah Creek water from Lake Berryessa per year, although reductions in deliveries can occur during drought conditions. The water is delivered to the southwest corner of the campus via an underground pipeline. UC Davis also has rights to surface water from Putah and Cache Creeks. The campus has not used this water in the recent past, but the tenant farmer at Russell Ranch uses approximately 3,750 acre-feet of water per year from Putah and Cache Creeks (via Willow Canal) for irrigation of commercial crops.

The quantity and quality of flows in Putah Creek are highly variable and depend on releases from Lake Berryessa, precipitation, storm water runoff, and treated effluent discharge. The campus' tertiary level Wastewater Treatment Plant (WWTP) is the largest discharger of treated effluent to Putah Creek. The plant is regulated under a National Pollutant Discharge Elimination System (NPDES) Waste Discharge

Requirement (WDR) permit issued by the Central Valley Regional Water Quality Control Board (CVRWQCB).

The project site is approximately 1 acre of undeveloped land that has been used for material storage. While no defined drainage pathway within the project site is evident due to its relatively flat topography, drainage along the western edge of the project site ultimately discharges into the pipe culvert to the northwest. The area at the northeast of the project site drains to the east. Standing water and minor flooding have been observed on the site in the past; however, this condition has been alleviated by recent drainage improvements on site.

#### **4.4 Climate and Meteorology**

Located in the Sacramento Valley, the Davis area climate is characterized as temperate. The wettest season is winter, with an average annual rainfall of 19.1 inches (48.5 cm). Winter temperatures range from 36 to 65 °F (2 to 18 °C) and summer temperatures range from 55 to 93 °F (13 to 34 °C).

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.

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.

## **4.5 Surrounding Communities**

The CNPRC is located in the northwestern portion of the UC Davis campus, approximately 3.5 miles (5.6 km) west of downtown Davis. The CNPRC is approximately 16 miles (26 km) from Sacramento and approximately 60 miles (97 km) from San Francisco.

There are no residential communities immediately adjacent to the CNPRC. The nearest residential dwellings are located approximately 0.7 mile northeast of the CNPRC and the Davis city limits are located approximately 0.9 mile to the northeast. The CNPRC is otherwise surrounded by open space/agricultural uses that are part of the UC Davis West Campus.

## **4.6 Human Health**

Generation, transportation, and disposal of hazardous wastes are regulated by various agencies. The lead federal regulatory agency is the Environmental Protection Agency. The State Department of Toxic Substances Control (DTSC) has primary state regulatory responsibility but can delegate enforcement authority to local jurisdictions that enter into agreements with the state agency, as it has with YCDEH under the Certified Unified Program Agency (CUPA) program. EH&S coordinates most local, state, and federal regulatory compliance functions related to the campus' health, safety, and environmental issues (see discussion above in **Subsection 3.1.3, Safety and Security**).

No hazardous materials are used or stored on site at present as the project site is currently being used for materials storage with large storage containers. The site is covered with compacted dirt and gravel, with some concrete pads for containers.

## **4.7 Socioeconomics**

This section describes the social and economic environment that would be potentially affected by the construction and operation of the proposed RDC. The social and economic environment of a region is characterized by its demographic composition, the structure and size of its economy, and the types and levels of public services available to its citizens. Accordingly, this socioeconomic discussion provides information on the existing socioeconomic environment as it relates to the surrounding region's population growth, employment and income levels, housing stock, taxes, property values, and public services.

The geographic area in which the primary social and economic impacts from the Proposed Action are likely to take place is defined based on the location of the proposed RDC, the likely residence of the majority of the lab's workforce, and the distribution of businesses providing services to the lab.

### **4.7.1 Employment**

UC Davis is the top employer in Yolo County with approximately 19,758 full-time staff and 11,012 part-time staff as of Fall 2009 (UC Davis 2009), totaling approximately 32 percent of the Yolo County nonfarm labor force.

### **4.7.2 Taxes**

A state sales and use tax of 8.25 percent is levied on the purchase or lease price of taxable goods and on utility services (food and prescription drugs are exempt). California has many special taxing jurisdictions (districts), which are funded by a transactions (sales) and use tax rate that is added to the standard statewide rate of 8.25 percent. The tax rates for these districts range from 0.10 to 1.00 percent per district. In some areas, there is more than one district tax in effect. In others, there is no district tax in effect. The UC Davis campus rate is 8.25 percent, whereas the City of Davis has a tax rate of 8.75 percent (BOE 2009).

### **4.7.3 Community Services**

#### **Schools**

The school district serving the project area is the Davis Joint Unified School District (DJUSD), which has nine elementary schools, two junior high schools, two high schools, one continuation high school, and one independent study program. The DJUSD estimates student enrollment based on a rate of 0.69 student per single-family residential unit and 0.44 student per multi-family residential unit in its service area. There were 8,573 students enrolled in the DJUSD during the 2008-09 academic year.

#### **Public Safety**

In the 2009-2010 school year, the UC Davis Police Department employed 38 sworn officers to provide 24-hour service to the Davis and Sacramento campuses and facilities owned and leased by UC Davis. Nineteen officers provide law enforcement services at the Davis Campus, which has an estimated daytime population of 40,185 (including UC and non-UC employees, students, and dependents living in on-campus housing). Although the campus does not currently rely on any level-of-service standards, the Police Department has indicated that it would like to reach and maintain 1 sworn officer per 1,000 population on the Davis Campus. The Police Department is currently staffed at a level of approximately 0.5 officers per 1,000 on the Davis Campus (Souza 2010).

The UC Davis Fire Department provides primary fire response and prevention, natural disaster response, hazardous materials incident response, and emergency medical service to the main campus. The fire department's goal is to respond to 90 percent of campus emergency calls within 6 minutes (Trauernicht

2010). As of 2010, the UC Davis Fire Department achieves its stated standard of response (Trauernicht 2010).

#### **4.7.4 Property Values**

The City of Davis experienced dramatic changes in property values between 2000 and 2011. The median value of owner-occupied units in the city was approximately \$255,000 in 2000, increased to a peak of \$552,000 at the beginning of 2006, and as of this writing is approximately \$412,000 (Zillow.com, June 2011). Overall, housing values increased by approximately 85 percent between 2000 and 2011.

### **4.8 Air Quality**

The campus is subject to air quality regulation programs 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. Within the campus vicinity, air quality is monitored, evaluated, and controlled by the U.S. Environmental Protection Agency (EPA), the California Air Resources Board (CARB), and the Yolo-Solano Air Quality Management District (YSAQMD). The YSAQMD is one of five air districts located in the Sacramento Valley Air Basin (SVAB) and has jurisdiction over air quality in the Yolo County and the northeastern portion of Solano County.

Historically, air quality laws and regulations have divided air pollutants into two broad categories: “criteria pollutants” and “toxic air contaminants.” Federal and state air quality standards have been established for the following ambient air pollutants, the criteria pollutants: ozone (O<sub>3</sub>), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter less than 10 microns in diameter (PM<sub>10</sub>), lead (Pb), and particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>). Ozone is evaluated by assessing emissions of its precursors: reactive organic gases (ROG) and NO<sub>x</sub>.

Toxic air contaminants (TACs) are airborne pollutants for which there are no air quality standards but which are known to have adverse human health effects. TACs are regulated under federal and state statutes, primarily with control technology requirements for stationary and mobile sources and mitigation established following human health risk assessments. TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion equipment, and laboratories; mobile sources such as automobiles and construction vehicles; and area sources such as farms, landfills, construction sites, and residential areas.

Air quality on campus on any given day is influenced by both meteorological conditions and pollutant emissions. In general, meteorological conditions vary more than pollutant emissions from day to day, and tend to have a greater influence on changes in measured ambient pollutant concentrations. Ambient concentrations of CO and PM10, however are particularly influenced by local emission sources. The EPA has classified the entire SVAB, which includes the campus, as a nonattainment area for O3. Districts in the SVAB have requested a voluntary bump-up designation to “severe,” which would result in an attainment deadline of 2018. [The EPA approval of the voluntary bump-up is still pending]. The CARB has also designated the area as being in nonattainment under the state ambient air quality standards for O3 and PM10. The designation of an area as attainment or nonattainment is based on monitored data throughout the SVAB.

There are no sensitive receptors on the CNPRC site. The CNPRC is a large research complex of with a developed core area of approximately 20 acres and approximately 200 acres in support area. The core area is set back from the closest roadways by about 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. The project facilities would facilitate exposure of nonhuman primates to pollutants such as second-hand cigarette smoke.

#### **4.9 Environmental Justice**

Pursuant to Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, environmental justice analyses identify and address any disproportionately high and adverse human health or environmental effects on minority or low-income populations.

Disproportionately high and adverse human health effects are identified by assessing these factors:

- Whether the adverse health effects, which may be measured in risks or rates, are significant or above generally accepted norms. Adverse health effects may include bodily impairment, infirmity, illness, or death.
- Whether health effects occur in a minority population or low-income population affected by cumulative or multiple adverse exposures from environmental hazards.
- Whether the risk to or rate of exposure of a minority population or low-income population to an environmental hazard is significant and appreciably exceeds or is likely to appreciably exceed the risk or rate to the general population or other appropriate comparison group.

Minority refers to people who classified themselves in the U.S. Census, or American Community Survey, as Black or African American, Asian or Pacific Islander, American Indian or Alaskan Native, Hispanic of

any race or origin, or other non-White races (CEQ 1997a). Environmental justice guidelines define “low-income” using statistical poverty thresholds used by the U.S. Census Bureau. Information on low-income populations was developed from incomes reported in the 2006-2008 American Community Survey conducted by the U.S. Census Bureau. The NIH has applied a “more than 25 percent” threshold of minority populations and low-income populations for analyzing potential environmental justice effects. This threshold is a reasonable approach and allowable under the CEQ guidance on environmental justice.

The nearest residential area is located in the City of Davis approximately 0.75 mile to the northeast of the CNPRC. Data from the 2006-2008 American Community Survey 3-Year Estimates for the City of Davis was used to identify potential environmental justice populations. The City of Davis is approximately 68.3 percent white with minority populations composing 31.7 percent of the total population. The NIH minority population threshold of 25 percent was set by the NIH to identify communities with the potential to be adversely and disproportionately affected by environmental effects. While the Davis population would be considered as an Environmental Justice community, the effects of the proposed project would not occur near residential areas and no effects would significantly and adversely affect a minority population.

#### **4.10 Waste Management**

##### ***Solid Waste***

UC Davis provides solid waste collection and recycling services for the campus. All nonrecycled and nonhazardous solid wastes collected on campus are disposed at the campus owned and operated Class III sanitary landfill located in the west campus area west of County Road 98 and north of Putah Creek (just south of CNPRC). In 2007, the Davis campus sent approximately 8,100 tons of solid waste to the campus landfill per year (approximately 34 tons per working day). In addition, approximately 3,700 tons of wastes from the UC Davis Medical Center in Sacramento are disposed at the landfill each year. The permitted capacity of the landfill is 500 tons per day, and the landfill unit currently being used has anticipated capacity to serve the campus needs through 2023. In 2007-08, approximately 14,300 tons of materials were diverted for recycling and reuse. The amount of materials diverted represents approximately 60 percent of the total waste generated on the Davis campus.

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

The campus’ Office of Environmental Health and Safety (EH&S) coordinates most local, state, and federal regulatory compliance functions related to the management, collection, and disposal of hazardous waste generated at UC Davis. UC Davis policy requires that all hazardous materials and hazardous chemical waste be picked up by EH&S or by an off site contractor approved by EH&S. EH&S response time for

waste pickup requests is approximately 4 to 5 working days. Users are required to package and label hazardous waste properly, by segregating incompatible materials, placing the waste in appropriate sealed containers, and identifying all components with approximate concentrations. Campus plans, policies, and training emphasize that hazardous wastes are not to be placed in the trash or poured down a drain. Hazardous chemical wastes are temporarily secured at the on-campus facility for hazardous wastes in locked rooms or storage sheds. Bulk liquid, solid, and nonmedical biological waste drums are inspected daily and shipped within 90 days of initial accumulation.

#### **4.11 Noise**

The primary noise source in the vicinity of the campus is vehicular traffic using I-80, SR 113, and local roads. Other sources of noise include occasional aircraft over-flights associated with the University Airport located on the west campus and another small airport in the vicinity, agricultural activities, railroads, and landscaping activities. Land use surrounding the campus is primarily agricultural, with residential, commercial, and other uses concentrated along the northern and eastern boundaries of the main campus.

The project site is located roughly in the center of the CNPRC, and is surrounded by existing CNPRC buildings and developed areas. Noise sources in the immediate vicinity include traffic on County Road 98, Russell Boulevard, and other nearby streets and internal roadways; and heating and air conditioning equipment in existing buildings. The nearest sensitive receptors to the project site are the private school and residences located approximately 1,600 feet to the northeast and east.

#### **4.12 Land Use**

The approximately 5,300-acre UC Davis campus is located within Yolo and Solano counties. Local land use is predominantly agricultural, with small cities and towns. The campus is surrounded by extensive agricultural uses to the west and south and by residential, institutional, and commercial land uses in the City of Davis, to the north and east. The City of Davis is a university-oriented community with over 62,000 residents. The UC Davis campus consists of four general units: the central campus, the south campus, the west campus, and Russell Ranch. In addition, the University of California owns several properties in the City of Davis, including buildings in downtown Davis and buildings and vacant parcels in the South Davis Research Park, located south of I-80. The CNPRC is located within the west campus.

As a component of the University of California, UC Davis is not subject to municipal land use policies such as the City of Davis General Plan. Nevertheless, such policies are of interest to the campus. The campus has a tradition of working cooperatively with the local communities and it is University policy to seek consistency with local plans and policies, where feasible.



The 2003 LRDP is the campus' primary land use planning guide. It designates campus lands for the following uses through 2015-16: Academic and Administrative (High and Low Density); Teaching and Research Fields; Teaching and Research Open Space; Parking; Physical Education, Intercollegiate Athletics, and Recreation; Research Park (High and Low Density); Formal Open Space; Community Gardens; Faculty/Staff Housing, Student Housing; Mixed Use Housing; and Elementary School.

The project site is designated for Academic/Administrative High Density uses under the 2003 LRDP. The Academic/Administrative High Density category typically designates areas for large, multi-story facilities that facilitate the teaching, research, and public service mission of the University of California. These include: classrooms; research laboratories and research support areas; faculty, student and staff offices; libraries; program support facilities; student activity space; meeting rooms; space for public service, outreach and cultural activities; and business/service activities that support the University mission.

#### **4.13 Aesthetics**

The campus is surrounded by extensive agricultural uses to the west and south, and by residential, institutional, and commercial land uses in the City of Davis to the north and east. Views within the Davis area are generally of two types: open views of agricultural land and supporting facilities with views of hills to the west, and views of developed areas within UC Davis and the City of Davis.

The west campus primarily includes teaching and research fields with agricultural buildings and developed areas with campus support facilities and academic and administrative facilities such as the CNPRC.

Design review of campus development projects takes place during the project planning, design, review, and approval processes to sustain valued elements of the campus' visual environment, to assure new projects contribute to a connected and cohesive campus environment, and to otherwise minimize adverse aesthetics effects as feasible. Formal design review by the campus Design Review Committee takes place for every major capital project. This Committee includes standing members from the Offices of Administrative and Resource Management, Architects and Engineers, Grounds, and other departments concerned with potential aesthetic effects, as well as program representatives and invited design professionals with expertise relevant to the project type. Campus design standards and plans that provide the basis for design review include the 2003 LRDP, the Campus Standards and Design Guide manual, the campus Architectural Design Guidelines, and the Campus Core Study.

The project footprint is within a portion of the CNPRC, which has been used for materials storage, and covered with compacted fills and gravel. The project site is surrounded on three sides by single-story structures and by a service drive along its north edge.

#### **4.14 Ecological Resources**

The 5,300-acre campus is located in a region that is composed primarily of urban areas and agricultural lands that include remnant riparian areas. Habitat types on campus are classified as Agricultural Lands (including Cropland/Pasture and Orchard/Vineyard), Valley Foothill Riparian Woodland, Ruderal/Annual Grassland, Open Water Ponds, Riverine, and Urban Landscaping/Developed.

The project site is within the developed portion of the CNPRC in an area of approximately one acre on a previously disturbed land used for materials storage. It is covered with compacted fills and gravel and surrounded by existing structures and/or landscaped areas. The project site does not provide habitat for special status species, and there are no trees or other vegetation currently located on the project site.

#### **4.15 Transportation**

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 vehicle access to the west campus is provided by Hutchison Drive, to the south campus by Old Davis Road, and to Russell Ranch by Russell Boulevard.

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.

Parking at UC Davis is provided by a combination of surface lots and parking structures. UC Davis Transportation and Parking Services (TAPS) oversees parking services on campus including selling parking passes, providing traffic control at special events, ticketing violators, and measuring parking utilization throughout campus on a quarterly basis. Approximately 11,500 parking spaces were provided on campus in Fall of 2008.

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.

## **4.16 Historic Resources**

The earliest direct historic contacts in the Davis area probably occurred during 1806 to 1808. Farming on a large scale began in the Davis area in the 1850s. A “university farm” was established at Davis in 1906, classes began in 1909, and Davis became a general University of California campus in 1959. No properties within the campus are listed on the National Register of Historic Places. Six properties on or near the campus have been recorded with the California Historical Resources Information System. Historic architectural features typically must be at least 50 years of age to be considered for listing on the California Register of Historical Resources (CRHR).

There are no buildings within the footprint of the project site, and the CNPRC site was undeveloped and used for farming and materials storage prior to development of the CNPRC. There are no known historic or prehistoric resources on site.

## **4.17 Utilities and Services**

### *Domestic Water and Fire Water*

The campus’ domestic/fire water system obtains water from six deep-aquifer wells to serve the needs of campus buildings, landscape irrigation on the west and south campuses, and heating and cooling systems at the Central Heating and Cooling Plant (CHCP). The system includes approximately 144,000 linear feet of distribution pipelines, a water tower and a ground storage tank with a combined capacity of approximately 500,000 gallons, an underground storage reservoir with a capacity of approximately 1.3 million gallons, and a booster pump station. In 2007-08, peak demand was 3,100 gpm and current usage is approximately 2,300 acre-feet per year. The proposed points of connection for the project would be at a 12-inch main that was recently installed by the West Campus Utilities project on the northeast side of the project site. The termination points for the automatic fire sprinkler water and domestic water would be on the northeast side of the project site. The firewater final layout and any required hydrant locations would require UC Davis Fire Department approval. The project is expected to require approximately 7 gpm during operations and 500 gpm for fire service.

### *Wastewater*

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 Putah Creek. The peak month capacity of the campus WWTP, as regulated under the existing NPDES permit issued by the CVRWQCB, is 2.7 mgd average in a dry-weather month. Recent upgrades have raised the capacity to 3.85 mgd monthly average for a dry

weather month. The maximum monthly demand in 2007 was 2.4 mgd. 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 SLS-10 is necessary to accommodate the new building load.

### ***Storm Drainage***

Storm water from the developed portions of the CNPRC is collected by a series of swales and storm drains which flow northerly and discharge into a storm water detention basin located south of Russell Boulevard near its intersection with County Road 96. The detention basin was designed to control the peak flows of runoff that discharge from the CNPRC site via a culvert under Russell Boulevard into Covell Drain. The detention basin is sized to hold the flows from the development of new building space envisioned under the 2003 LRDP for the CNPRC, including the proposed project.

### ***Electricity***

The main campus currently receives electricity from the Western Area Power Administration (WAPA) through PG&E transmission lines at the campus substation located south of I-80. The campus electrical system has an available capacity of 64.4 megawatts (MW). Annual electrical usage on campus in 2007-08 was approximately 235 million kilowatt-hours (KWh) per year. Relocation of an existing transformer and secondary distribution are necessary to accommodate placement of the proposed building footprint. The proposed points of connection would be at the existing Communications building transformer located on the northeast side of the project site, and at the pullbox along the east side of the proposed building to complete the 12 kV building loop distribution.

### ***Natural Gas***

The campus purchases natural gas from outside vendors and provides it to the campus facilities through PG&E pipelines. Natural gas is provided to four locations on campus for use and distribution: the CHCP, the Primate Center Plant, the Cogeneration Plant, and the Master Meter #1. The proposed point of connection for the project would be the 4-inch main recently installed by the West Campus Utilities project on the northeast side of the project site.

### ***Telecommunications***

The majority of telephone, data, video, and wireless infrastructure and facilities on campus are owned by the campus and operated by the UC Davis Communications Resources Department. The main campus

switching facility is located in the Telecommunications Building. As new buildings are constructed, the Communications Resources Department coordinates with the UC Davis Office of Architects and Engineers to design and direct the installation of intra- and inter-building telecommunications facilities in accordance with established standards. The proposed conduit point of connection for the project would be at the existing pullbox located on the east side of the proposed building, and the propose cable point of connection would be at the existing pullbox on the northeast side of the project site.

## **5.0 ENVIRONMENTAL CONSEQUENCES**

The EIR prepared for the 2003 LRDP identified the impacts of buildout under the LRDP and, where necessary, included mitigation measures to avoid or reduce these impacts. These mitigation measures were subsequently integrated into campus policies and practices and are required to be incorporated into all individual development projects at UC Davis, including the proposed RDC project. The LRDP mitigation measures relevant to the proposed project are identified in each topical discussion below. The proposed action and any alternative would include the applicable measures and they are therefore considered to be components of the project for the purposes of this analysis.

### **5.1 Geology**

No significant impacts were identified in the 2003 LRDP EIR related to geology, soils, and seismicity, and there are no LRDP mitigation measures for this issue relevant to the proposed project.

#### ***No Action***

Under the No Action Alternative, the proposed RDC would not be constructed at the CNPRC. There would be no geology impacts under this alternative.

#### ***Proposed Action***

The UC Davis campus and the surrounding area are not located within an Alquist-Priolo Earthquake Fault Zone, and the closest known active fault rupture zones are over 30 miles away. Therefore, there would be no impact related to fault rupture.

The campus is located in a seismically active area that could experience ground shaking, liquefaction, and settlement. The peak ground acceleration for the main campus is estimated to be 0.2 to 0.3g. This intensity of seismic ground shaking has the potential to dislodge objects from shelves and to damage or destroy buildings and other structures. In the case of such a seismic event, people on campus and in the area would be exposed to these hazards.

The campus minimizes hazards associated with damage or destruction to buildings and other structures by reviewing and approving all draft building plans for compliance with the California Building Code (CBC), which includes specific structural seismic safety provisions. The campus also adheres to the University of California Seismic Safety Policy, which requires anchorage for seismic resistance of nonstructural building elements such as furnishings, fixtures, material storage facilities, and utilities that could create a hazard if dislodged during an earthquake. Campus EH&S provides guidance for preparing department-level Illness and Injury Prevention Plans that emphasize methods for minimizing

seismic hazards in laboratories, for example, by properly securing chemical containers and gas cylinders. Each campus department has a Safety Coordinator who develops and maintains a departmental emergency response plan. The departmental emergency response plans must be submitted to the Emergency Preparedness Policy Group for annual review to assure consistency with the campus Emergency Operations Plan, which includes seismic safety and building evacuation procedures. The emergency procedures incorporated into the departmental emergency response plans further reduce the hazards from seismic shaking by preparing faculty, staff, and students for emergencies. All of these procedures would be implemented as part of the proposed action. Therefore, exposure to hazards due to seismic ground shaking would be minor.

### ***Reduced Facilities Alternative***

The reduced facilities alternative would result in slightly reduced geology impacts as compared to the proposed action because it would expose fewer people to potential seismic hazards. Otherwise, geology impacts under this alternative would be similar to the proposed action because the UC Davis campus is subject to same seismic conditions as the CNPRC.

## **5.2 Soils**

### ***No Action***

Under the No Action Alternative, the proposed RDC would not be constructed at the CNPRC. There would be no soils impacts under this alternative.

### ***Proposed Action***

The Davis area subsided by approximately 2 inches between 1999 and 2002. Because the subsidence is regional, unlike local differential settlement, it would not affect building foundations. Subsidence can adversely affect utilities such as storm drains which rely on gradient for gravity-driven flow if the differential subsidence across the length of the pipeline causes the gradient of the pipelines to change direction. On the campus, the differential subsidence is about 0.4 inch per mile. Thus, over a period of 10 years, the gradient of a pipeline could change by as much as 4 inches per mile. Gravity-flow pipelines typically used for wastewater and storm water are designed with gradients between 0.5 and 1 percent (27 to 53 feet drop per mile). Given these gradients, the small potential change of about 4 inches per mile over a period of 10 years would not affect the functioning of existing and proposed storm drains or other utilities.

The soils that occur on the project site contain a high amount of silt and clay, and these soil types have minimal erosion hazard associated with them. The project site is flat and compacted by previous use for materials storage. Once the proposed building and associated utility connections are constructed, the site soils would be underneath pavement or landscaping, and there would be minimal potential for soil erosion. The impact related to soil erosion would therefore be minor.

### *Reduced Facilities Alternative*

The reduced facilities alternative would result in soils impacts similar to the proposed action because the facility would be in the same location but would have a smaller footprint. Although less of the site would be covered by impervious surfaces, this alternative would not result in a substantial difference in the potential for soil erosion because the site is flat and compacted by previous use for materials storage.

## **5.3 Groundwater/Surface Water**

The following LRDP mitigation measures related to groundwater and surface water impacts are relevant to the proposed project. These measures have been incorporated into the proposed action and would be included in any development alternative.

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### **2003 LRDP EIR Mitigation Measures**

#### **HYDROLOGY & WATER QUALITY**

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- 4.8-1      The campus shall continue to comply with the NPDES state-wide General Permit for Discharge of Storm Water Associated with Construction Activity by implementing control measures and BMPs required by project-specific SWPPPs and with the Phase II SWMP to eliminate or reduce non-storm and storm water discharges to receiving waters.
- 4.8-2      The campus shall comply with the measures in the Phase II SWMP to ensure that project design includes a combination of BMPs, or equally effective measures as they become available in the future, to minimize the contribution of pollutants to receiving waters.
- 4.8-3(a)    Prior to approval of specific projects under the 2003 LRDP, the campus shall perform a drainage study to evaluate each specific development to determine whether project runoff would exceed the capacity of the existing storm drainage system, cause ponding to worsen, and/or increase the potential for property damage from flooding.
- 4.8-3(b)    If it is determined that existing drainage capacity would be exceeded, ponding could worsen, and/or risk of property damage from flooding could increase, the campus shall design and implement necessary and feasible improvements. Such improvements could include, but would not be limited to, the following:
  - (i)    The expansion or modification of the existing storm drainage system.
  - (ii)   Single-project detention or retention basins incorporated into project design with features including but not limited to: small onsite detention or retention basins; rooftop ponding; temporary flooding of parking areas, streets and gutters; landscaping designed to temporarily retain water; and gravel beds designed to collect and retain runoff.
  - (iii) Multi-project storm water detention or retention basins.
- 4.8-3(c)    Campus development west of County Road 98 shall incorporate single- or multi-project basins in order to reduce storm event drainage flows to the Covell Drain.
- 4.8-4(a)    The campus shall continue to monitor and modify its pretreatment program, WWTP operation, and/or treatment processes as necessary to comply with WDRs.



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**2003 LRDP EIR Mitigation Measures**
**HYDROLOGY & WATER QUALITY**


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- 4.8-4(b) The campus shall implement a monitoring program specifically targeted at the following constituents: copper, cyanide, iron and nitrate + nitrite, and make appropriate modifications as necessary to the campus pretreatment program to avoid exceedance of permit limits for these constituents.
- 4.8-5(a) The campus shall continue to implement water conservation strategies to reduce demand for water from the deep aquifer. Domestic water conservation strategies shall include the following or equivalent measures:
- (i) Install water efficient shower heads and low-flow toilets that meet or exceed building code conservation requirements in all new campus buildings, and where feasible, retrofit existing buildings with these water efficient devices.
  - (ii) Continue the leak detection and repair program.
  - (iii) Continue converting existing single-pass cooling systems to cooling tower systems.
  - (iv) Use water-conservative landscaping on the west and south campuses where domestic water is used for irrigation.
  - (v) Replace domestic water irrigation systems on the west and south campuses with an alternate water source (shallow/intermediate or reclaimed water), where feasible.
  - (vi) Install water meters at the proposed neighborhood to encourage residential water conservation.
  - (vii) Identify and implement additional feasible water conservation strategies and programs including a water awareness program focused on water conservation.
- 4.8-5(b) The campus shall continue hydrogeologic monitoring and evaluation efforts to determine the long-term production and quality trends of the deep aquifer.
- 4.8-5(c) To the extent feasible, new water supply wells in the deep aquifer should be located on the west campus in sands and gravels that are not used by or available to the City of Davis for deep water extraction.
- 4.8-5(d) If continued hydrogeologic monitoring and evaluation efforts identify constraints in the deep aquifer's ability to provide for the campus' long-term water needs, the campus will treat shallow/intermediate aquifer and/or surface water from the Solano Project to serve domestic water demand.
- 4.8-6(a) The campus shall continue to implement water conservation strategies to reduce demand for water from the intermediate aquifer. Utility water conservation strategies shall include the following or equivalent measures:
- (i) Landscape, where appropriate, with native, drought resistant plants and use lawns only where needed for pedestrian traffic, activity areas, and recreation.
  - (ii) Install efficient irrigation systems including centrally controlled automatic irrigation systems and low-flow spray systems.
  - (iii) Apply heavy applications of mulch to landscaped areas to reduce evaporation
  - (iv) Use treated wastewater for landscape irrigation where feasible.
- 4.8-6(b) The campus shall continue to monitor shallow/intermediate aquifer water elevations at existing campus wells to ascertain whether there is any long-term decline in water levels.
- 4.8-6(c) The campus shall continue to participate in regional subsidence monitoring, including by installing an extensometer, to determine the vertical location of local subsidence.
- 4.8-6(d) If shallow/intermediate aquifer monitoring or subsidence monitoring indicate that campus water use from the intermediate aquifer is contributing to a net deficit in aquifer volume and/or significant subsidence, the campus will reduce use of water from the aquifer by using surface water and/or treated wastewater effluent to irrigate campus recreation fields.
- 4.8-6(e) The campus shall incorporate the following or equally effective measures into project designs under the 2003 LRDP where feasible, to increase percolation and infiltration of precipitation into the underlying shallow/intermediate aquifers:
- (i) Minimize paved surfaces.
  - (ii) Use grassy swales, infiltration trenches, or grass filter strips to intercept storm water runoff.
  - (iii) Implement LRDP Mitigation 4.8-3(b), which specifies construction of detention and infiltration facilities in

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**2003 LRDP EIR Mitigation Measures**
**HYDROLOGY & WATER QUALITY**


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those areas that do not discharge storm water to the Arboretum.

- 4.8-10(a) Implement LRDP Mitigation 4.8-1 and 4.8-2.
- 4.8-10(b) Jurisdictions within the Putah Creek watershed should comply with Phase II NPDES Municipal Storm Water Permit requirements for small municipalities in order to minimize the contribution of sediment and other pollutants associated with development in the region.
- 4.8-10(c) Comprehensive SWPPPs and monitoring programs should be implemented by all storm water dischargers associated with specified industrial and construction activities, in compliance with the state's General Permits. Such plans shall include BMPs or equally effective measures.
- 4.8-11 The campus shall implement LRDP Mitigation 4.8-3(a-c) in order to prevent flooding on campus.
- 4.8-12 The campus shall implement LRDP Mitigation 4.8-4(a) and (b) to minimize the potential for degradation of receiving water quality.
- 4.8-13(a) Implement LRDP Mitigation 4.8-5(a-d).
- 4.8-13(b) The City of Davis is expected to implement measures to reduce the amount of water withdrawn from the deep aquifer consistent with policies adopted in its General Plan.
- Give priority to demand reduction and conservation over additional water resource development (Policy WATER 1.1)
- Require water conserving landscaping (Policy WATER 1.2)
- Provide for the current and long-range water needs of the Davis Planning Area, and for protection of the quality and quantity of groundwater resources (Policy WATER 2.1)
- Manage groundwater resources so as to preserve both quantity and quality (Policy WATER 2.2)
- Research, monitor and participate in issues in Yolo County and the area of origin of the City's groundwater that affect the quality and quantity of water (Policy WATER 4.1)
- 4.8-14(a) The campus should implement LRDP Mitigation 4.8-6(a-e) to minimize its withdrawal from the shallow/intermediate aquifer and maximize the potential for infiltration.
- 4.8-14(b) Consistent with current water planning policies, the City of Davis is expected to implement measures to reduce impervious surfaces and reduce the amount of water withdrawn from the shallow/intermediate aquifer, consistent with, but not limited to, the water policies listed in LRDP Mitigation 4.8-13(b).
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***No Action***

Under the No Action Alternative, the proposed RDC would not be constructed at the CNPRC. There would be no groundwater/surface water impacts under this alternative.

***Proposed Action***

The approximately 1-acre project site is compacted and covered with fill and gravel; therefore, the existing shallow/intermediate aquifer recharge on the site is limited. The addition of impervious surfaces associated with the proposed project would therefore not substantially change the conditions at the site relative to groundwater recharge. The project would include some limited landscaping. Similar to the rest of the landscaping at CNPRC, this landscaping would be irrigated using water from the deep aquifer and not from the shallow/intermediate aquifer.

The proposed project would increase the demand for domestic and fire water on the campus by approximately 7 gallons per minute. Domestic, fire, and irrigation water for use on the west campus is obtained from on-campus wells screened in the deep aquifer. The deep aquifer is confined with limited lateral and vertical recharge and is overlain by thick clay layers that are relatively impermeable. Because of these characteristics, increased impervious surfaces associated with development of the Respiratory Diseases Center will not substantially affect the recharge capacity of the deep aquifer.

### ***Reduced Facilities Alternative***

The reduced facilities alternative would result in slightly reduced hydrology impacts as compared to the proposed action because the facility would be in the same location but would have a smaller footprint. Although less of the site would be covered by impervious surfaces, this alternative would not substantially change the conditions at the site relative to groundwater recharge. The reduced facility would also have a lower demand for domestic and fire water than the proposed action. Therefore, impacts to groundwater and surface water resources would remain minor.

## **5.4 Climate and Meteorology**

No significant impacts were identified in the 2003 LRDP EIR related to climate and meteorology, and there are no LRDP mitigation measures for this issue relevant to the proposed project. The 2003 LRDP EIR did not address global climate change.

### ***No Action***

Under the No Action Alternative, the proposed RDC would not be constructed at the CNPRC. There would be no climate or meteorology impacts under this alternative.

### ***Proposed Action***

Construction and operation of the proposed RDC would not affect meteorological conditions or regional climatic conditions. The appropriate approach to evaluating a project's impact on global climate under NEPA is still under development. The Council on Environmental Quality (CEQ), the agency responsible for administering the National Environmental Policy Act (NEPA), has released draft NEPA guidance on greenhouse gas emissions. The guidance recommends a threshold of 25,000 CO<sub>2</sub>-equivalent metric tons (MTCO<sub>2e</sub>)<sup>1</sup> of direct emissions as a "bright line" threshold for analysis within NEPA documents. The

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<sup>1</sup> The CO<sub>2</sub> equivalent emissions are commonly expressed as "metric tons of carbon dioxide equivalent (MTCO<sub>2e</sub>)". The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated global warming potential (GWP), such that MTCO<sub>2e</sub> = (metric tons of a GHG) × (GWP of the GHG). For example, the

guidance suggests that emissions below this threshold would not be relevant to and would not need to be discussed within a NEPA analysis. The draft NEPA guidance focuses on direct emissions only (GHG emissions that would be generated on site by the project) and does not include off-site indirect emissions such as those generated by vehicle trips to and from the project site or from the generation of electricity used by the proposed project.

As of the time that this Environmental Assessment 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, 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 MTCO<sub>2</sub>e, 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 MTCO<sub>2</sub>e per year; the performance-based threshold is 4.6 MTCO<sub>2</sub>e per service population (employees plus residents) per year (BAAQMD 2010).

The analysis used in the 2010 Focused Tiered Draft EIR and in this Environmental Assessment uses 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

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GWP for methane is 21. This means that emissions of one metric tons of methane are equivalent to emissions of 21 metric tons of CO<sub>2</sub>.

conservative reference point for the analysis of project impacts in the absence of directly applicable quantitative thresholds.

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.

### **Construction Impacts**

During construction, the proposed project would directly contribute to climate change through its contribution of the greenhouse gases 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 the lack of data precludes their quantification without speculation.

The primary GHG emissions during construction are CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O. These emissions are the result of fuel combustion by construction equipment and motor vehicles. The other GHGs defined by state law (hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) are typically associated with specific industrial sources and processes and would not be emitted during construction of the proposed project. The URBEMIS2007 Environmental Management Software was used to estimate the construction-related CO<sub>2</sub> emissions. Because detailed information regarding construction phasing and scheduling was not available for future projects under the 2003 LRDP, default scheduling within URBEMIS2007 was assumed for grading, building construction, asphalt paving, and architectural coating activities. URBEMIS2007 only calculates CO<sub>2</sub> emissions and does not provide estimates of other GHGs associated with combustion (i.e., CH<sub>4</sub> and N<sub>2</sub>O). Therefore, in order to account for emissions of these compounds, the following adjustments were made to the URBEMIS2007 emission calculations to convert CO<sub>2</sub> emissions to a CO<sub>2</sub>e basis:

- Construction Off-Road and On-Road Equipment. The CO<sub>2</sub> emissions associated with off-road and on-road equipment were multiplied by a factor based on the assumption that CO<sub>2</sub> represents approximately 99.1 and 99.9 percent, respectively, of the CO<sub>2e</sub> 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 CO<sub>2</sub> emissions associated with construction-related worker trips were multiplied by a factor based on the assumption that CO<sub>2</sub> represents 95 percent of the CO<sub>2e</sub> emissions associated with passenger vehicles, which account for most of the project-related trips (U.S. EPA 2005). The 95 percent factor accounts for CH<sub>4</sub>, N<sub>2</sub>O, 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 have been amortized over a 25 year period and included in the amortized operational total discussed under Operational Impacts below.

## Operational Emissions

A summary of the operational emissions at full operation of the RDC is provided below in **Table 3, RDC GHG Emissions**. Detailed emission calculations are provided in Appendix C.

**Table 3**  
**Annual RDC GHG Emissions**

Scope	Source	GHG Emissions (Metric Tons CO <sub>2</sub> e/year)
Scope 1	Stationary Combustion	414
Scope 2	Purchased Electricity	80
Scope 3	Mobile Combustion (Commuters)	185
Scope 3	Amortized Construction (25 years)	8
Other	Solid Waste	64
Other	Water	2
Other	Wastewater	1
<b>Total Annual GHG Emissions</b>		<b>754</b>

*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 above, the additional emissions from the RDC would not exceed the CARB reporting or the draft NEPA threshold. Therefore, the project's impact would not be significant from the standpoint of these guidelines, and no project-specific mitigation is required. In addition, even with the inclusion of stationary source GHG emissions, the proposed project would result in GHG emissions that are less than the CAPCOA proposed threshold of significance of 900 MTCO<sub>2</sub>e. This threshold is the most stringent non-zero threshold analyzed in the CAPCOA white paper, and more stringent than any guidelines actually adopted by California air districts. It should be noted that 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. As the project's GHG emissions do not exceed even this very stringent potential threshold, the project's GHG emissions are considered minor.

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 their AB 32 requirements. In developing this project, UC Davis will incorporate the GHG mitigation measures described the UC Policy on Sustainable Practices and the UC Davis CAP to the extent feasible. Consequently, the project will be developed in a

way that represents a significant improvement on Business as Usual and contribute to reducing GHG emissions as described in the SMAQMD CEQA guidance. The project's impact would therefore be minor from this standpoint as well.

### ***Reduced Facilities Alternative***

Implementation of this alternative would not affect meteorological conditions or regional climatic conditions. Because a UC Davis Alternative would include development of similar facilities at a reduced scale, and therefore would have lower construction and operational emissions than the proposed action, impacts of this alternative would be minor for the reasons described above.

## **5.5 Surrounding Communities**

Impacts related to effects on surrounding communities were addressed in the 2003 LRDP EIR under the relevant CEQA topical analyses. The LRDP mitigation measures relevant to the proposed project are described in this Environmental Assessment under the appropriate topical headings, including noise, population and housing, and traffic.

### ***No Action***

Under the No Action Alternative, the proposed RDC would not be constructed at the CNPRC. There would be no effect on surrounding communities under this alternative.

### ***Proposed Action***

The proposed RDC would have a beneficial effect through the generation of construction and operational jobs that could be filled by individuals residing in the surrounding communities. Noise and traffic impacts due to construction activities would be localized and temporary and may have a negligible impact during daylight hours on nearby residential areas, primarily along Russell Boulevard.

### ***Reduced Alternative***

Impacts to surrounding communities under this alternative would be slightly reduced as compared to the proposed action because construction of the smaller facility would be shorter in duration and would generate slightly less noise and fewer construction trips.



## 5.6 Human Health

The following LRDP mitigation measures related to human health impacts are relevant to the proposed project. These measures have been incorporated into the proposed action and would be included in any development alternative.

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### 2003 LRDP EIR Mitigation Measures

#### HAZARDS & HAZARDOUS MATERIALS

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- 4.7-1 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&S audits and safety training. These programs may be replaced by other programs that incorporate similar health and safety measures.
- 4.7-2(a) Implement LRDP Mitigation 4.7-1.
- 4.7-2(b) 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.
- 4.7-3(a) Implement LRDP Mitigation 4.7-1.
- 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

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**2003 LRDP EIR Mitigation Measures**  
**HAZARDS & HAZARDOUS MATERIALS**


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- 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.

### *Construction*

Human health effects during site preparation and construction of the proposed RDC would be similar to those of any construction project. The effects would be localized and affect only site workers or visitors to the site. Routine construction activities have the potential to expose workers or site visitors to common hazards such as slips, trips, and falls; electrical shock; heat stress; or fire and explosion hazards. Workers could be potentially exposed to high noise levels from heavy equipment operation and activities such as cutting metal or grinding operations. The likelihood of injury or death would depend on the construction occupation and the length of the construction period.

Many construction accidents can be avoided with proper training and adequate safety equipment. To ensure a safe working environment during construction, construction contractors would be required to comply with OSHA regulations and any applicable state and local construction safety standards. Compliance with health and safety standards would minimize the potential adverse effects to worker health and safety during construction.

### *Operation*

Due to the nature of the biomedical research that would be performed at the proposed RDC, hazardous materials and infectious agents would be present. Proper storage, handling, and disposal of these materials would prevent accidental exposures or releases and minimize potential adverse impacts to human health. The RDU conducts research using non-human primates and consequently, the RDC building would include BSL-2 and BSL-2 enhanced design features because pathogenic 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 control through 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.

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. Compliance with UC Davis policies and biosafety protocols would reduce the potential for human health effects resulting from implementation of the proposed RDC.

### ***Reduced Facilities Alternative***

Human health effects of the reduced facility alternative would be similar to the proposed action because it would involve the same type of research at the same location but on a smaller scale. Research at the reduced facility would be subject to the same regulations and campus policies and protocols as the proposed action. Therefore, this alternative would not have substantial adverse effect on human health.

## **5.7 Socioeconomics**

No significant impacts were identified in the 2003 LRDP EIR specifically related to socioeconomic effects, and there are no LRDP mitigation measures for this issue relevant to the proposed project. A significant population and housing impact was identified in the 2003 LRDP EIR. No mitigation was available to reduce the magnitude of this impact, which was considered significant and unavoidable. The proposed project was included in the population and housing forecasts used in the 2003 LRDP EIR.

### ***No Action***

Under the No Action Alternative, the proposed RDC would not be constructed at the CNPRC. There would be no socioeconomic impacts under this alternative.

### ***Proposed Action***

Construction of the proposed RDC would require approximately 15 construction workers (daily average), and would have short-term benefits on employment and income in the project area. It is expected that most construction jobs would be filled by the existing labor force, so there would be no noticeable effect

on regional income, housing markets, or the demand for community services. Changes in property value are also not expected to occur.

The operation of the proposed RDC would add approximately 25 permanent employees to the local payroll of the Davis area. It is anticipated that the majority of these employees would reside within Yolo or Sacramento County. The addition of 25 permanent employees would not have a noticeable effect on the regional income, housing markets, or the demand for community services. Income and property taxes would generate additional revenue for the state during the operation of the RDC. Assuming that new employees would spend a portion of their income on goods and services, the state would also receive additional revenue from its sales tax, which is 8.25 percent. Given the limited number of permanent direct jobs expected to be created from the operation of the proposed RDC, the effect on community services in the project area would be negligible.

### ***Reduced Facilities Alternative***

The reduced facility alternative would employ fewer construction worker and permanent employees than the proposed action. Similar to the proposed action, the limited number of permanent direct jobs expected to be created from the operation of the facility would have a negligible effect on community services in the project area.

## **5.8 Air Quality**

The following LRDP mitigation measures related to air quality impacts are relevant to the proposed project. These measures have been incorporated into the proposed action and would be included in any development alternative.

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### **2003 LRDP EIR Mitigation Measures**

#### **AIR QUALITY**

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- 4.3-1(a) Vehicular Sources. The following measures will be implemented to reduce emissions from vehicles, as feasible.
- The campus shall continue to actively pursue Transportation Demand Management to reduce reliance on private automobiles for travel to and from the campus.
  - Provide pedestrian-enhancing infrastructure to encourage pedestrian activity and discourage vehicle use.
  - Provide bicycle facilities to encourage bicycle use instead of driving.
  - Provide transit-enhancing infrastructure to promote the use of public transportation.
  - Provide facilities to accommodate alternative-fuel vehicles such as electric cars and CNG vehicles.
  - Improve traffic flows and congestion by timing of traffic signals to facilitate uninterrupted travel.
  - When the campus purchases new vehicles, the campus will evaluate the practicality and feasibility of acquiring low-pollution vehicles that are appropriate for the task and will purchase these types of vehicles when practical and feasible. When replacing diesel engines in existing equipment, the campus will install up-to-date technology.

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**2003 LRDP EIR Mitigation Measures**
**AIR QUALITY**

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- 4.3-1(b) Area Sources. The following measures will be implemented to reduce emissions from area sources, as feasible.
- Use solar or low-emission water heaters in new or renovated buildings.
  - Orient buildings to take advantage of solar heating and natural cooling and use passive solar designs.
  - Increase wall and attic insulation in new or renovated buildings.
  - For fireplaces or wood-burning appliances, require low-emitting EPA certified wood-burning appliances, or residential natural-gas fireplaces.
  - Provide electric equipment for landscape maintenance.
- 4.3-1(c) The campus will work with the YSAQMD to ensure that emissions directly and indirectly associated with the campus are adequately accounted for and mitigated in applicable air quality planning efforts. The YSAQMD can and should adopt adequate measures consistent with applicable law to ensure that air quality standard violations are avoided.
- 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

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**2003 LRDP EIR Mitigation Measures**
**AIR QUALITY**


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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.

4.3-6 Implement LRDP Mitigation 4.3-1(a-c).

4.3-8 EPA and CARB are expected to continue the development and implement programs to reduce air toxics, and UC Davis will continue its efforts in this area.

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***No Action***

Under the No Action Alternative, the proposed RDC would not be constructed at the CNPRC. There would be no air quality impacts under this alternative.

***Proposed Action***

Construction of the proposed RDC would result in on-site and off-site emissions. On-site emissions would 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 would consist of exhaust emissions from worker commute trips and on-road haul and vendor trucks.

Construction of the proposed RDC is anticipated to last approximately one year and would involve the use of heavy duty equipment, such as graders, dozer, loaders, water trucks, cranes, forklifts, and paving equipment. The majority of the equipment is conservatively assumed to operate continuously for 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 calculations assume the use of standard construction practices to reduce fugitive dust emissions, as well as compliance with the following Best Management Practices (BMPs):

- 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;
- 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; and
- 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 1, 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 1**  
**Estimated Unmitigated Construction Emissions**

Construction Emissions	Emissions					
	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Maximum Pounds per Day (lbs/day)	8.65	45.05	29.43	0.01	10.33	4.13
Maximum Tons per Year (tpy)	0.33	1.59	1.12	0.00	0.24	0.12
YSAQMD Threshold	10 tpy	10 tpy	—	—	80 lbs/day	—
Exceeds Threshold?	NO	NO	—	—	NO	—

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.

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. Stationary source emissions would be generated from point (stationary) sources located on the project site; these would 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 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 2, 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 2**  
**Estimated Operational Emissions**

Operational Emissions	Emissions					
	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM10	PM2.5
<b>Maximum Tons per Year (tpy)</b>						
Mobile Sources	0.19	0.30	2.26	0.00	0.34	0.07
Area Sources	0.02	0.00	0.14	0.00	0.00	0.00
Stationary Sources	0.07	0.76	0.44	0.00	0.07	0.07
Total	0.28	1.06	2.84	0.0	0.41	0.14
<b>Maximum Pounds per Day (lbs/day)</b>						
Mobile Sources	1.05	2.05	12.82	0.01	1.88	0.38
Area Sources	0.19	0.02	1.55	0.00	0.01	0.01
Stationary Sources	2.10	25.68	7.05	0.02	1.92	1.92
Total	3.34	27.75	21.42	0.03	3.81	2.31
YSAQMD Threshold	10 tpy	10 tpy	—	—	80 lbs/day	—
Exceeds Threshold?	NO	NO	—	—	NO	—

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.

### ***Reduced Facilities Alternative***

The reduced facility alternative would generate lower emissions than the proposed action because it would involve the construction of a smaller facility that would employ fewer people. Therefore, this



alternative would not exceed air quality significance thresholds and would not have a substantial effect on air quality.

## **5.9 Environmental Justice**

The 2003 LRDP EIR did not address environmental justice, and thus there are no LRDP mitigation measures for this issue relevant to the proposed project.

### *No Action*

Under the No Action Alternative, the proposed RDC would not be constructed at the CNPRC. There would be no environmental justice impacts under this alternative.

### *Proposed Action*

As discussed in **Section 5.6, Human Health**, the proposed action would pose no appreciable health and/or environmental risks to the public, and therefore, there would be no disproportionately high and adverse effects to minority populations or low-income populations. In addition, there are no special circumstances that would result in disproportionately high and adverse impacts on minority or low-income populations from any exposure pathway. Therefore, there would be no environmental justice impacts.

### *Reduced Facilities Alternative*

As this alternative would be in the same location as the proposed action, the reduced facility alternative would not result in environmental justice impacts.

## **5.10 Waste Management**

No significant impacts were identified in the 2003 LRDP EIR related to waste management, and there are no LRDP mitigation measures for this issue relevant to the proposed project.

### *No Action*

Under the No Action Alternative, the proposed RDC would not be constructed at the CNPRC. There would be no waste management impacts under this alternative.

### *Proposed Action*

Sanitary solid waste would continue to be managed as discussed in **Section 4.10, Waste Management**. Since the proposed RDC has not been constructed, exact waste volumes are not known. However, a minor increase in the volume of sanitary solid waste generated at the CNPRC is anticipated. The UC Davis campus landfill has adequate capacity to accommodate this increase in waste and there would be no impacts related to waste management from operation of the proposed facility. The UC Davis recycling program would be implemented at the proposed facility.

The waste generated by the proposed RDC would include infectious/medical and hazardous chemical waste and would increase in the total amount of waste produced at the CNPRC. Since the proposed facility has not been constructed, exact waste volumes are not known. UC Davis already has well-developed practices and procedures in place for the transport, storage, and disposal of these wastes. 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. Therefore, the potential impact would be minor.

### *Reduced Facilities Alternative*

This alternative would result in the generation of lesser amounts of sanitary solid waste and hazardous wastes than the proposed project and wastes would be managed in the same manner as the proposed action described above. Therefore, the potential impact would be minor.

## **5.11 Noise**

The following LRDP mitigation measure related to noise impacts is relevant to the proposed project. This measure has been incorporated into the proposed action and would be included in any development alternative.

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### **2003 LRDP EIR Mitigation Measures**

#### NOISE

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| 4.10-1 | Prior to initiation of construction, the campus shall approve a construction noise mitigation program including but not limited to the following: |
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**2003 LRDP EIR Mitigation Measures**
**NOISE**


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Construction equipment shall be properly outfitted and maintained with feasible noise-reduction devices to minimize construction-generated noise.

Stationary noise sources such as generators or pumps shall be located 100 feet away from noise-sensitive land uses as feasible.

Laydown and construction vehicle staging areas shall be located 100 feet away from noise-sensitive land uses as feasible.

Whenever possible, academic, administrative, and residential areas that will be subject to construction noise shall be informed a week before the start of each construction project.

Loud construction activity (i.e., construction activity such as jackhammering, concrete sawing, asphalt removal, and large-scale grading operations) within 100 feet of a residential or academic building shall not be scheduled during finals week.

Loud construction activity as described above within 100 feet of an academic or residential use shall, to the extent feasible, be scheduled during holidays, Thanksgiving breaks, Christmas break, Spring break, or Summer break.

Loud construction activity within 100 feet of a residential or academic building shall be restricted to occur between 7:30 AM and 7:30 PM.

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***No Action***

Under the No Action Alternative, the proposed RDC would not be constructed at the CNPRC. There would be no noise impacts under this alternative.

***Proposed Action***

The project site is located approximately 1,600 feet from the nearest sensitive receptors and would involve conventional construction techniques and equipment that would not generate substantial levels of vibration or groundborne noise. Pile driving, blasting, or other special construction techniques are not anticipated. Routine noise levels from conventional construction activities (with the normal number of pieces of equipment operating on the site) range from 75 to 86 dBA Leq at a distance of 50 feet, from 69 to 80 dBA Leq at a distance of 100 feet, from 55 to 66 dBA Leq at a distance of 500 feet, and 48 to 60 dBA Leq at a distance of 1,000 feet (although noise levels would likely be lower due to additional attenuation from ground effects, air absorption, and shielding from miscellaneous intervening structures). Noise levels at the nearest sensitive receptors (at a distance of approximately 1,600 feet from the source) would therefore be below the significance criteria of 80 dBA Leq daytime and evening and 70 dBA Leq nighttime. However, noise from construction would be audible and would temporarily elevate the local ambient noise level to some degree at distances greater than 100 feet from construction.

Generation of noise levels on or adjacent to the project site associated with vehicle trips and mechanical equipment would contribute to ambient noise levels at the CNPRC. The relatively small number of new vehicle trips generated by the proposed project and associated with approximately 25 new employees could add a small number of vehicles to these locations; however, the increase would be well within average daily fluctuations in traffic volume and would not result in a perceptible increase in noise. Noise from the project's mechanical equipment would be acoustically controlled and would not adversely affect any sensitive receptors. The potential impact would be minor.

### ***Reduced Facilities Alternative***

The RDC facility would be located in the same location as the proposed action under this alternative and, therefore, would have the same proximity to sensitive receptors. Construction and operational noise would be slightly reduced as this alternative would result in fewer construction truck trips and fewer operational trips because it would have fewer employees. The potential impact would be minor.

## **5.12 Land Use**

No significant impacts were identified in the 2003 LRDP EIR related to land use, and there are no LRDP mitigation measures for this issue relevant to the proposed project.

### ***No Action***

Under the No Action Alternative, the proposed RDC would not be constructed at the CNPRC. There would be no land use impacts under this alternative.

### ***Proposed Action***

The applicable land use plan for the campus is the 2003 LRDP and the project site is designated for Academic/Administrative High Density uses under the 2003 LRDP. The proposed action would include research laboratory and research support areas, and faculty and staff offices. These uses are consistent with the Academic/Administrative High Density land use designation.

The proposed action would have no potential to physically divide an established community. The project site is approximately 0.75 mile from an established residential community and is completely surrounded by existing buildings used for research purposes. No impact would occur related to land use.

### *Reduced Facilities Alternative*

The RDC facility would be located in the same location as the proposed action under this alternative and the land use impacts would be the same. Therefore, no impact would occur related to land use.

### **5.13 Aesthetics**

The following LRDP mitigation measures related to aesthetic impacts are relevant to the proposed project. These measures have been incorporated into the proposed action and would be included in any development alternative.

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#### **2003 LRDP EIR Mitigation Measures**

##### AESTHETICS

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| 4.1-2(a) | New structures, roads, and landscaping at UC Davis shall be designed to be compatible with the visual elements and policies identified in the 2003 LRDP.  |
| 4.1-2(b) | Prior to design approval of development projects under the 2003 LRDP, the campus Design Review Committee must determine that project designs are consistent with the valued elements of the visual landscape identified in the 2003 LRDP, applicable planning guidelines, and the character of surrounding development so that the visual character and quality of the project area are not substantially degraded.                           |
| 4.1-3(a) | Design for specific projects shall provide for the use of textured nonreflective exterior surfaces and nonreflective glass.   |
| 4.1-3(b) | Except as provided in LRDP Mitigation 4.1-3(c), all new outdoor lighting shall utilize directional lighting methods with shielded and cutoff type light fixtures to minimize glare and upward directed lighting.  |
| 4.1-3(c) | Non-cutoff, non-shielded lighting fixtures used to enhance nighttime views of walking paths, specific landscape features, or specific architectural features shall be reviewed by the Campus Design Review Committee prior to installation to ensure that: (1) the minimum amount of required lighting is proposed to achieve the desired nighttime emphasis, and (2) the proposed illumination creates no adverse effect on nighttime views. |
| 4.1-3(d) | The campus will implement the use of the specified lighting design and equipment when older lighting fixtures and designs are replaced over time.   |
| 4.1-4(a) | Implement LRDP Mitigation 4.1-1.  |
| 4.1-4(b) | The City of Davis, Yolo County, and Solano County can and should implement the General Plan policies that support the long-term establishment and preservation of scenic vistas.  |
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### *No Action*

Under the No Action Alternative, the proposed RDC would not be constructed at the CNPRC. There would be no aesthetics impacts under this alternative.

### *Proposed Action*

The proposed RDC would be a one-story building with an overall size of approximately 20,000 gross square feet. It would be constructed immediately north of an existing animal research building at the

CNPRC on a site currently used for materials storage. Short-term visual impacts associated with construction activities (dust, equipment, exhaust, etc.) would be limited to the construction staging and lay-down areas and the immediate construction site of the proposed RDC. The proposed facility would be visible from limited viewpoints along County Road 98, approximately 0.2 mile to the northeast of the site, but would mostly be screened by intervening vegetation and structures. Viewers (mainly in automobiles along County Road 98, which has no sidewalks or bike lanes) would typically experience brief, partial glimpses of the facility. The exterior design of the proposed RDC would be compatible with surrounding facilities at the CNPRC and would not introduce new incompatible visual elements or affect current aesthetics. There would be no aesthetic impacts resulting from operation of the proposed RDC.

### ***Reduced Facilities Alternative***

The RDC facility would be located in the same location as the proposed action under this alternative and the aesthetic impacts would be the same. Therefore, no aesthetic impacts would occur.

## **5.14 Ecological Resources**

No significant impacts identified in the 2003 LRDP EIR related to ecological resources are relevant to the proposed project; therefore, no LRDP mitigation measures are relevant to the project.

### ***No Action***

Under the No Action Alternative, the proposed RDC would not be constructed at the CNPRC. There would be no impacts to ecological resources under this alternative.

### ***Proposed Action***

The proposed action site is heavily disturbed from past activities and is compacted and largely covered with gravel and concrete. The project site and its immediate vicinity do not contain appropriate habitat for any of the special status species known to occur on campus or to have potential habitat present on campus, including: northern California black walnut, burrowing owl, Swainson's hawk, valley elderberry longhorn beetle, California tiger salamander, Chinook salmon, giant garter snake, steelhead, and northwestern pond turtle. Although Swainson's hawks may use the agricultural fields and open grassland areas on the west campus for foraging, such habitat is not present on the project site including the areas that would be disturbed in conjunction with utility connections. No suitable Swainson's hawk nesting habitat is located within ½ mile of the site. Project development would therefore have no effect on special status wildlife species.

### *Reduced Facilities Alternative*

The RDC facility would be located in the same location as the proposed action under this alternative and the impacts to ecological resources would be the same. Therefore, no ecological resources impacts would occur.

### **5.15 Transportation**

The following LRDP mitigation measures related to transportation impacts are relevant to the proposed project. These measures have been incorporated into the proposed action and would be included in any development alternative.

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#### **2003 LRDP EIR Mitigation Measures**

##### TRANSPORTATION, CIRCULATION, & PARKING

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- 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 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.

### *No Action*

Under the No Action Alternative, the proposed RDC would not be constructed at the CNPRC. There would be no transportation impacts under this alternative.

### ***Proposed Action***

The construction of the proposed RDC would lead to minor increases in traffic in the project area. Traffic in the area would be increased by trips to and from the proposed action site by construction workers and construction equipment, and delivery of construction materials to the site. During operation of the proposed RDC, traffic would slightly increase due to workers traveling to and from the work site and making deliveries. The employment increase of 25 people is conservatively assumed to produce 25 new people driving to the CNPRC, although some employees would likely bicycle, carpool, or use campus transit services. The increase in 25 people is expected to result in a range of 50 to 100 additional trips per days in and out of the CNPRC. Increased traffic is expected primarily along County Road 98, Hutchison Drive, Russell Boulevard, and State Route 113. Traffic monitoring conducted in 2008 determined that all campus intersections are operating acceptably. The traffic volumes monitored in 2008 show that the campus had adequately improved campus roadways to accommodate projected traffic levels and that continued campus growth that is consistent with the 2003 LRDP, including the proposed action, could be supported by the existing infrastructure. Therefore, the addition of 50 to 100 additional trips per day is not expected to degrade levels of service. Given the small size of the facility, the limited number of workers, and the existing network of local and regional roadways, the proposed action is not anticipated to have any significant impacts on the existing roadway system.

### ***Reduced Facilities Alternative***

This alternative would result in slightly reduced traffic impacts as compared to the proposed action as the construction of a smaller facility would required fewer construction truck trips and the employment of fewer people would result in fewer operational vehicle trips. Therefore, given the small size of the facility, the limited number of workers, and the existing network of local and regional roadways, the reduced facility alternative is not anticipated to have any significant impacts on the existing roadway system.

## **5.16 Historic Resources**

The following LRDP mitigation measures related to historic resources impacts are relevant to the proposed project. These measures have been incorporated into the proposed action and would be included in any development alternative.

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### **2003 LRDP EIR Mitigation Measures** CULTURAL RESOURCES

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**2003 LRDP EIR Mitigation Measures**
**CULTURAL RESOURCES**


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- 4.5-1(a) As early as possible in the project planning process, the campus shall define the project's area of potential effects (APE) for archaeological resources and, if structures are present on the site, for historic structures. The campus shall determine the potential for the project to result in cultural resource impacts, based on the extent of ground disturbance and site modification anticipated for the proposed project. Based on this information, the campus shall:
- (i) Prepare an inventory of all buildings and structures within the APE that will be 50 years of age or older at the time of project construction for review by a qualified architectural historian. If no structures are present on the site, there would be no impact to historic built environment resources from the project. If potentially historic structures are present, LRDP Mitigation 4.5-1(c) shall be implemented.
  - (ii) Determine the level of archaeological investigation that is appropriate for the project site and activity, as follows:
 

Minimum: excavation less than 18 inches deep and in a relatively small area (e.g., a trench for lawn irrigation, tree planting, etc.). Implement LRDP Mitigation 4.5-1(b)(i).

Moderate: excavation below 18 inches deep and/or over a large area on any site that has not been characterized and is not suspected to be a likely location for archaeological resources. Implement LRDP Mitigation 4.5-1 (b)(i) and (ii).

Intensive: excavation below 18 inches and/or over a large area on any site that is within 800 feet of the historic alignment of Putah Creek, or that is adjacent to a recorded archaeological site. Implement LRDP Mitigation 4.5-1 (i), (ii) and (iii).
- 4.5-1(b) During the planning phase of the project, the campus shall implement the following steps to identify and protect archaeological resources that may be present in the APE:
- (i) For project sites at all levels of investigation, contractor crews shall be required to attend an informal training session prior to the start of earth moving, regarding how to recognize archaeological sites and artifacts. In addition, campus employees whose work routinely involves disturbing the soil shall be informed how to recognize evidence of potential archaeological sites and artifacts. Prior to disturbing the soil, contractors shall be notified that they are required to watch for potential archaeological sites and artifacts and to notify the campus if any are found. In the event of a find, the campus shall implement item (vi), below.
  - (ii) For project sites requiring a moderate or intensive level of investigation, a surface survey shall be conducted by a qualified archaeologist during project planning and design and prior to soil disturbing activities. For sites requiring moderate investigation, in the event of a surface find, intensive investigation will be implemented, as per item (iii), below. Irrespective of findings, the qualified archaeologist shall, in consultation with the campus, develop an archaeological monitoring plan to be implemented during the construction phase of the project. The frequency and duration of monitoring shall be adjusted in accordance with survey results, the nature of construction activities, and results during the monitoring period. In the event of a discovery, the campus shall implement item (vi), below.
  - (iii) For project sites requiring intensive investigation, irrespective of subsurface finds, the campus shall retain a qualified archaeologist to conduct a subsurface investigation of the project site, to ascertain whether buried archaeological materials are present and, if so, the extent of the deposit relative to the project's area of potential effects. If an archaeological deposit is discovered, the archaeologist will prepare a site record and file it with the California Historical Resource Information System.
  - (iv) If it is determined through step (iii), above, that the resource extends into the project's area of potential effects, the resource will be evaluated by a qualified archaeologist, who will determine whether it qualifies as a historical resource or a unique archaeological resource under the criteria of CEQA Guidelines § 15064.5. If the resource does not qualify, or if no resource is present within the project area of potential effects (APE), this will be noted in the environmental document and no further mitigation is required unless there is a discovery during construction (see (vi), below).
  - (v) If a resource within the project APE is determined to qualify as an historical resource or a unique archaeological resource (as defined by CEQA), the campus shall consult with the qualified archaeologist to consider means of avoiding or reducing ground disturbance within the site boundaries, including minor modifications of building footprint, landscape modification, the placement of protective fill, the establishment of a preservation easement, or other means that will permit avoidance or substantial

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**2003 LRDP EIR Mitigation Measures**
**CULTURAL RESOURCES**

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- preservation in place of the resource. If avoidance or substantial preservation in place is not possible, the campus shall implement LRDP Mitigation 4.5-2(a).
- (vi) If a resource is discovered during construction (whether or not an archaeologist is present), all soil disturbing work within 100 feet of the find shall cease. The campus shall contact a qualified archaeologist to provide and implement a plan for survey, subsurface investigation as needed to define the deposit, and assessment of the remainder of the site within the project area to determine whether the resource is significant and would be affected by the project. LRDP Mitigation 4.5-1(b), steps (iii) through (vii) shall be implemented.
- (vii) A written report of the results of investigations will be prepared by a qualified archaeologist and filed with the appropriate Information Center of the California Historical Resources Information System.
- 4.5-2(a) For an archaeological site that has been determined by a qualified archaeologist to qualify as an historical resource or a unique archaeological resource through the process set forth under LRDP Mitigation 4.5-1(b), and where it has been determined under LRDP Mitigation 4.5-1(b) that avoidance or preservation in place is not feasible, a qualified archaeologist, in consultation with the campus, shall:
- (i) Prepare a research design and archaeological data recovery plan for the recovery that will capture those categories of data for which the site is significant, and implement the data recovery plan prior to or during development of the site.
- (ii) Perform appropriate technical analyses, prepare a full written report and file it with the appropriate information center, and provide for the permanent curation of recovered materials.
- (iii) If, in the opinion of the qualified archaeologist and in light of the data available, the significance of the site is such that data recovery cannot capture the values that qualify the site for inclusion on the CRHR, the campus shall reconsider project plans in light of the high value of the resource, and implement more substantial modifications to the proposed project that would allow the site to be preserved intact, such as project redesign, placement of fill, or project relocation or abandonment. If no such measures are feasible, the campus shall implement LRDP Mitigation 4.5 3.
- 4.5-3 If a significant historic resource or unique archaeological resource cannot be preserved intact, before the property is damaged or destroyed the campus shall ensure that the resource is appropriately documented, as follows.
- (i) For a built environment feature, appropriate documentation is described under LRDP 4.5-2 (b)
- (ii) For an archaeological site, a program of research-directed data recovery shall be conducted and reported, consistent with LRDP Mitigation 4.5-2(a).
- 4.5-4(a) Implement LRDP Mitigation 4.5-1, 4.5-2 and 4.5-3 to minimize the potential for disturbance or destruction of human remains in an archaeological context and to preserve them in place, if feasible.
- 4.5-4(b) Provide a representative of the local Native American community an opportunity to monitor any excavation (including archaeological excavation) within the boundaries of a known Native American archaeological site.
- 4.5-4(c) In the event of a discovery on campus of human bone, suspected human bone, or a burial, all excavation in the vicinity will halt immediately and the area of the find will be protected until a qualified archaeologist determines whether the bone is human. If the qualified archaeologist determines the bone is human, or if a qualified archaeologist is not present, the campus will notify the Yolo or Solano County Coroner (depending on the county of the find) of the find before additional disturbance occurs. Consistent with California Health and Safety Code § 7050.5(b), which prohibits disturbance of human remains uncovered by excavation until the Coroner has made a finding relative to PRC 5097 procedures, the campus will ensure that the remains and vicinity of the find are protected against further disturbance. If it is determined that the find is of Native American origin, the campus will comply with the provisions of PRC § 5097.98 regarding identification and involvement of the Native American Most Likely Descendant (MLD).
- 4.5-4(d) If human remains cannot be left in place, the campus shall ensure that the qualified archaeologist and the MLD are provided opportunity to confer on archaeological treatment of human remains, and that appropriate studies, as identified through this consultation, are carried out prior to reinterment. The campus shall provide results of all such studies to the local Native American community, and shall provide an opportunity of local Native American involvement in any interpretative reporting. As stipulated by the provisions of the California Native American Graves Protection and Repatriation Act, the campus shall ensure that human remains and associated artifacts

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**2003 LRDP EIR Mitigation Measures**
**CULTURAL RESOURCES**


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recovered from campus projects on state lands are repatriated to the appropriate local tribal group if requested.

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***No Action***

Under the No Action Alternative, the proposed RDC would not be constructed at the CNPRC. There would be no impacts to historic resources under this alternative.

***Proposed Action***

There are no historic resources on the project site because it is currently used for materials storage at the CNPRC and has never been used for permanent structures.

***Reduced Facilities Alternative***

There are no historic resources on the alternative site because it is currently used for materials storage at the CNPRC and has never been used for permanent structures.

**5.17 Utilities and Services**

The following LRDP mitigation measures related to utilities and service systems impacts are relevant to the proposed project. These measures have been incorporated into the proposed action and would be included in any development alternative.

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**2003 LRDP EIR Mitigation Measures**
**UTILITIES & SERVICE SYSTEMS**

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| 4.15-3    | Once preliminary project design is developed, the campus shall review each project to determine whether existing capacity of the sanitary sewer line at the point of connection is adequate. If the capacity of the sewer line is determined inadequate, the campus will upgrade the system to provide adequate service to the project site prior to occupation or operation.  |
| 4.15-6(a) | Once preliminary project design is developed, the campus shall review each project to determine whether the existing electrical system is adequate at the point of connection. If the electrical system is determined inadequate, the campus will upgrade the system to provide adequate service to the project prior to occupation or operation.  |
| 4.15-6(b) | The campus would continue to meet or exceed Title 24 energy conservation requirements for new buildings, and it would continue to incorporate energy efficient design elements outlined in the UC Davis Campus Standards & Design Guide in new construction and retrofit projects. These energy conservation standards may be subject to modification as more stringent standards are developed.   |
| 4.15-10   | If documented unmitigated significant environmental impacts are caused by the construction of wastewater treatment facilities in the Cities of Davis, Dixon, Woodland, and/or Winters that are needed in part due to implementation of the 2003 LRDP, UC Davis shall negotiate with the appropriate local jurisdiction to determine the campus' fair share (as described in Section 4.12.2.3) of the costs to implement any feasible and required environmental mitigation measures so long as the unmitigated impacts have not been otherwise reduced to less-than-significant levels through regulatory requirements, public funding, or agreements. This mitigation measure |
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**2003 LRDP EIR Mitigation Measures**  
UTILITIES & SERVICE SYSTEMS

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shall not apply to any other costs associated with implementation of utilities or service systems.

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***No Action***

Under the No Action Alternative, the proposed RDC would not be constructed at the CNPRC. There would be no impacts to utilities and services under this alternative.

***Proposed Action***

**Water:** Domestic water would be used for irrigation and utility purposes. The campus' domestic water system obtains water from six deep-aquifer wells to serve the needs of campus buildings and landscape irrigation on the West Campus. The proposed point of connection for the project would be at a 12-inch main that was recently installed by the West Campus Utilities project on the northeast side of the project site. The project is expected to require approximately 7 gpm during operations and 500 gpm for fire service. No extensions would be necessary, and there would be no impact related to water facilities.

**Wastewater:** The proposed project would contribute a peak of 3,475 gallons per day (GPD) of wastewater to the campus sanitary sewer system. The project's point of connection to the system would be at a new manhole on the northeast side of the project site. Implementation of the proposed project would require the expansion of campus wastewater treatment and conveyance facilities, the construction and operation of which would not result in significant environmental impacts because future expansion of the existing WWTP and installation of new sanitary sewer conveyance lines would primarily occur on previously disturbed ground. In addition, the campus would survey the site before construction and perform monitoring during construction to avoid inadvertent biological and cultural resource impacts. Therefore, this impact would be minor.

The Utility Study conducted for the proposed project determined that upgrades to sewer lift station SSLS-10 are necessary to accommodate the new building load from the project. Construction of this improvement would take place in an area that has been extensively disturbed and does not contain any sensitive cultural or biological resources. The improvement would consist of pump and piping upgrades to the existing lift station.

**Storm Drainage:** Storm water from the project site would be collected by a storm drain which would discharge into the CNPRC storm drain system and into the CNPRC detention basin located in the northeastern portion of the CNPRC site. The Utility Study conducted for the proposed project

determined that on-site swales and a short section of a storm drain would need to be constructed to convey flows to the existing retention basin located immediately east of the project site, and that there is adequate detention capacity in the CNPRC detention basin to detain the flows from the project site. Construction of the short storm drain section is part of the proposed project; it would take place in an area already disturbed in conjunction with an internal roadway at CNPRC and would not adversely affect any significant cultural or biological resources. Therefore, the impact associated with storm drain improvements would be minor.

**Electricity:** For implementation of the proposed action, the campus would incorporate energy efficient design elements, meet or exceed Title 24 energy conservation requirements, and review the project to determine if the relevant utility supply is adequate at the point of connection and if any upgrades to the utility system are required. The University of California Policy on Sustainable Practices established a goal for all new building projects, other than acute-care facilities, to outperform the required provisions of the California Energy Code (Title 24) energy-efficiency standards by at least 20 percent. The policy also states that campuses will strive to design buildings that outperform Title 24 energy efficiency standards by 30 percent or more, whenever possible within the constraints of program needs and standard budget parameters.

Electrical utility extensions required by the proposed project would be constructed within a previously disturbed area and the campus would perform monitoring during construction to avoid inadvertent cultural resource impacts. Therefore, environmental effects associated with utility extensions would be minor.

**Telecommunication:** The project would connect to a conduit at the existing pullbox located on the east side of the proposed building, and the proposed cable point of connection would be at the existing pullbox on the northeast side of the project site. Construction of these connections would take place in areas that are disturbed and do not contain any sensitive cultural or biological resources. No additional telecommunications facilities would be required and there would be no environmental effect related to the expansion of telecommunications infrastructure.

### ***Reduced Facilities Alternative***

This alternative would result in slightly reduced impacts to utilities systems as compared to the proposed action. The reduced facility alternative would be located on the same site and would have the same access to existing infrastructure as the proposed action, but would have lower demand for utilities such as water and electricity and would generate less wastewater due to its smaller size and lower occupancy.

## **6.0 CUMULATIVE IMPACTS**

Cumulative impacts on the environment result from the incremental effect of an action when added to other past, present, and reasonably foreseeable future actions. These effects can result from individually minor, but collectively significant actions taking place over a period of time (40 CFR 1508.7). The UC Davis 2003 LRDP (UC Davis 2003a) and the UC Davis Respiratory Diseases Center Focused Tiered Draft EIR (UC Davis 2010) prepared in 2010 for the project were reviewed to address the scope of cumulative effects in addition to the project-specific impacts of construction and operation of the RDC.

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 proposed project would not contribute to significant unavoidable impacts identified in the 2003 LRDP EIR related to: aesthetics, agriculture resources, ecological (biological) resources, historic (cultural) resources, socioeconomic conditions (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, historic (cultural) resources, hydrology and water quality, noise, socioeconomic conditions (population and housing), public services, recreation, transportation/circulation, and utilities and service systems. No conditions have changed and no new information has become available since certification of the 2003 LRDP EIR that would alter this previous analysis. The 2010 Focused Tiered Draft EIR (UC Davis 2010) for the project evaluated potential impacts to air quality, greenhouse gas emissions, and hazards and hazardous materials and examined additional details regarding impacts to Transportation and Utilities to explain details of the proposed project. The project's potential contribution to cumulative impacts for air quality, greenhouse gas emissions, hazards and hazardous materials, transportation and circulation, and utilities and service systems was found to be less than significant.

A summary by topic of cumulative impacts identified in the 2003 LRDP EIR and the 2010 Focused Tiered Draft EIR is presented below.

### **6.1 Geology**

The campus minimizes hazards associated with damage or destruction to buildings and other structures by requiring that all draft building plans comply with the California Building Code (CBC), which includes specific structural seismic safety provisions. Emergency procedures incorporated into

departmental emergency response plans further reduce the hazards from seismic shaking by preparing faculty, staff, and students for emergencies. Implementation of these procedures as part of the proposed action would ensure that exposure to hazards due to seismic ground shaking would be minor. Because such hazards are generally site-specific in nature, the minor risk of exposure to seismic hazards would not contribute to a regional risk and therefore cumulative impacts would also be minor.

## **6.2 Soils**

As with geologic hazards, hazards related to soil conditions are generally site-specific in nature. The minor risk of soil erosion from the project would not contribute to a regional risk and therefore cumulative impacts would also be minor.

## **6.3 Groundwater/Surface Water**

The existing shallow/intermediate aquifer recharge on the site is limited, and the addition of impervious surfaces associated with the proposed project would not substantially change the conditions at the site relative to groundwater recharge. The proposed project would increase the demand for domestic and fire water on the campus. Domestic, fire, and irrigation water for use on the west campus is obtained from on-campus wells screened in the deep aquifer. The campus' deep aquifer demands have not significantly increased since the late 1960s, reflecting the success of the campus' water conservation efforts, and a generally upward recharge trend over the period from 1957 to 2002 indicates that there has not been long-term overdraft of the shallow/intermediate depth aquifers. The 2003 LRDP EIR identified significant potential cumulative impacts related to groundwater extraction and recharge; however, the RDC project would incorporate water-saving measures and would not substantially alter the site's limited potential for groundwater recharge. Based on these factors, the project's minor effect on groundwater would not make a substantial contribution to a long-term cumulative impact to groundwater.

The proposed project would not use surface water, and drainage from the site would be routed to the storm drain system and ultimately to drainage basins on the CNPRC site. The 2003 LRDP EIR identified significant cumulative impacts related to stormwater quality and quantity; however, water quality control measures required by the LRDP mitigation measures and incorporated into the project would ensure that the project's contribution to this impact would not be substantial.

## **6.4 Climate and Meteorology**

The discussion of greenhouse gas (GHG) emissions presented in **Section 5.4, Greenhouse Gas Emissions**, is effectively a cumulative-level discussion because project-related emissions are considered in relation to other existing emissions to evaluate the contribution to global climate change. As discussed in that

section, the project's impacts related to GHG emissions would be minor using even the most stringent standards of significance.

The project could make a cumulatively considerable contribution to global climate change impact if the project is not consistent with an applicable plan, policy, or regulation concerning greenhouse gas reductions. 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 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 mitigation 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 mitigation 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 measures identified in the 2010 Focused Tiered Draft EIR, would be consistent with the UC Policy on Sustainable Practices and the UC Davis 2009–2010 CAP.

## **6.5 Surrounding Communities**

Impacts related to effects on surrounding communities were addressed in the 2003 LRDP EIR under the relevant CEQA topical analyses, including noise, population and housing, and traffic.

## **6.6 Human Health**

Implementation of the proposed action and other projects at proposed at UC Davis under the 2003 LRDP could increase use and storage of hazardous materials, generation of hazardous wastes, and handling of laboratory animals and pathogenic organisms. Projects would be required to comply with applicable federal, state, and local regulations governing the handling and disposal of such materials. Compliance with UC Davis policies and biosafety protocols would reduce the potential for human health effects resulting from implementation of the proposed RDC and would result in a minimal cumulative effect related to risk of accidents involving hazardous materials or laboratory animals.



## **6.7 Socioeconomics**

A significant cumulative population and housing impact was identified in the 2003 LRDP EIR. No mitigation was available to reduce the magnitude of this impact, which was considered significant and unavoidable. The proposed project was included in the population and housing forecasts used in the 2003 LRDP EIR. Because of the small size of the proposed project, its contribution to cumulative socioeconomic impacts would be minor.

## **6.8 Air Quality**

Significant cumulative air quality impacts were identified in the 2003 LRDP EIR. No mitigation was available to reduce the magnitude of these impacts, which were considered significant and unavoidable. The proposed project was included in the air emissions forecasts used in the 2003 LRDP EIR. As discussed above, the RDC project's emissions would not exceed the construction- or operation-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 its contribution to cumulative air quality impacts would be minimal. 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 for the Maximally Exposed Individual and would be less than significant. Based on this analysis, the proposed project would not result in a cumulatively considerable impact.

## **6.9 Environmental Justice**

The City of Davis is not considered an environmental justice community, and the project therefore would not have any impacts related to environmental justice at either the project or cumulative level.

## **6.10 Waste Management**

The UC Davis campus landfill has adequate capacity to accommodate the increase in waste anticipated with implementation of the 2003 LRDP, and the proposed action was included in the projections used in the LRDP. There would therefore be no cumulative impacts related to waste management from operation of the proposed project together with other planned development under the LRDP.

## **6.11 Noise**

The 2003 LRDP EIR found that implementation of the 2003 LRDP would result in increased vehicular traffic on the regional road network, which would substantially increase ambient noise levels at certain locations along roadways near the campus. The relatively small number of new vehicle trips generated by the proposed project and associated with approximately 25 new employees would add a small number of

vehicles to local roadways; however, the increase would be well within average daily fluctuations in traffic volume and would not result in a perceptible increase in noise. Noise diminishes over distance and the on-site sources of noise would not generally be audible beyond the CNPRC boundaries; on-site noise sources from the project would therefore not contribute to cumulative noise impacts.

## **6.12 Land Use**

The 2003 LRDP EIR did not identify any potentially significant or significant land use and planning impacts, including cumulative impacts. The proposed project would not have any impacts with regard to land use, and therefore would not contribute to a cumulative impact.

## **6.13 Aesthetics**

The 2003 LRDP EIR found that development under the 2003 LRDP, together with other development in the region, could cumulatively affect local scenic vistas west across agricultural lands to the Coast Range and create substantial new sources of light and glare. Development of the CNPRC site could contribute to these cumulative impacts. However, the proposed RDC building would be entirely surrounded by other CNPRC buildings or screened by vegetation, and would itself have a minor effect on aesthetic resources. Its contribution to cumulative aesthetic impacts would be minor.

## **6.14 Ecological Resources**

The 2003 LRDP EIR identified significant cumulative impacts to ecological (biological) resources; however, the proposed action would not result in any biological impacts and therefore would not contribute to a cumulative impact to ecological resources.

## **6.15 Transportation**

The 2003 LRDP EIR found that implementation of the 2003 LRDP would cause unacceptable intersection and freeway LOS operations at off-campus facilities, including facilities contained in the Yolo County and Solano County Congestion Management Plans. The relatively small number of new vehicle trips generated by the proposed project and associated with approximately 25 new employees would add a small number of vehicles to local roadways; however, the increase would be well within average daily fluctuations in traffic volume and would not result in a perceptible deterioration of intersection or roadway segment levels of service. The contribution of the proposed action to cumulative transportation impacts would be minor.

## **6.16 Historic Resources**

The 2003 LRDP EIR found that development under the 2003 LRDP would contribute to cumulative damage to and loss of the resource base of unique archaeological resources and historical resources (including archaeological sites and historic buildings and structures) in the region. The proposed action would not result in any impacts to historic resources and therefore would not contribute to a cumulative impact to such resources.

## **6.17 Utilities and Services**

The 2003 LRDP EIR found that development under the 2003 LRDP together with other regional development could generate a cumulative demand for wastewater treatment facilities in the region, the construction of which could result in significant environmental impacts on habitat. The 2010 Focused Tiered Draft EIR prepared for the proposed action found that the lift station improvements included in the proposed action would have less than significant impacts, and that the project would have no impacts with regard to other utilities and services. The proposed action's contribution to cumulative impacts to utilities and service systems would be minor.

## **7.0 CONSULTATION LETTERS**

Not applicable.

## **8.0 REFERENCES**

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