APPENDIX 1.0

Notice of Preparation and Initial Study

State of California
Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814

NOTICE OF PREPARATION
ENVIRONMENTAL IMPACT REPORT

Project Title: Computational Research and Theory (CRT) Facility

Lead Agency: University of California
Lawrence Berkeley National Laboratory

Project Location: One Cyclotron Road, Berkeley, California 94720

County: Alameda County

Contact Person: Jeff Philliber
Environmental Planning Group
Lawrence Berkeley National Laboratory
One Cyclotron Road, MS 90J0120
Berkeley, CA 94720

Project Description

Lawrence Berkeley National Laboratory (LBNL) proposes to construct an approximately 150,000 gross square foot computer facility and office structure, associated infrastructure, and access improvements. The project site is located in the western portion of LBNL in Berkeley, Alameda County, California. The facility would accommodate up to approximately 300 employees.

Environmental Review and Comment

The University of California will be the Lead Agency and will prepare an Environmental Impact Report (EIR) for the proposed project. An Initial Study has been prepared in accordance with the California Environmental Quality Act (CEQA), the *CEQA Guidelines*, and the University of California Guidelines for the Implementation of CEQA to identify potential environmental impacts that will be addressed in the

EIR. The attached Initial Study also includes a description of the proposed project. At this time, it is anticipated that the EIR will address environmental impacts in the following resource areas: aesthetics, air quality, biological resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, transportation and traffic, and utilities.

A copy of this Notice of Preparation, Initial Study, and public scoping meeting announcement will be placed on the following website:

http://www.lbl.gov/community/CRT/

Please note that LBNL has issued another NOP for an EIR for the Helios Energy Research Facility Project which is also available at the Lab's website.

LBNL will hold a joint public scoping meeting for the EIRs for both projects on August 8, 2007 at the North Berkeley Senior Center, 1901 Hearst Street, Berkeley, from 6:30 PM to 8:30 PM. More information regarding the scoping meeting is provided in Attachment A.

This notice is to solicit your views on the scope and contents of the forthcoming CRT EIR. We request that any comments be received no later than 5:00 PM on Friday, August 24, 2007. Your name and a mailing address should be included with your comments. Please direct your comments to the attention of Jeff Philliber at the address noted above. Comments may also be submitted via email to the following address: planning@lbl.gov

If you have any questions regarding this NOP, please contact Jeff Philliber at the above address or via email at planning@lbl.gov.

Signature: _____ · FOR · _____ Date: 7/26/07
Laura Chen, Chief Facilities Planner
Lawrence Berkeley National Laboratory

Attachments: Public Scoping Meeting Announcement
Initial Study

cc: LBNL CEQA Agency and Public Mailing List

Agencies

State Clearinghouse

CA Air Resources Board, Executive Officer, Mary Nichols,
CA Department of Fish and Game, Director, Ryan Broddrick,
CA Department of Health Services, Chief, Radiological Health Branch, Edgar Bailey, et al.
CA Department of Parks & Recreation, Office of Historic Preservation, State Historic Preservation Officer, M. W. Donaldson, FAIA,
CA Department of Water Resources, Director, Lester Snow
CA Environmental Protection Agency, Secretary, Linda S. Adams, et al.
CA EPA, Department of Toxic Substances Control, Mohindar Sandu et al
CA Regional Water Quality Control Board, Bruce H. Wolff, Executive Officer, Keith Lichten, Section Leader Environmental Compliance, et al
CA State Resources Agency, Mike Chrisman, Secretary
CA State Water Resources Control Board, Executive Officer, Celeste Cantú, et al
CalTrans, Director, Will Kempton; Region 4 Director, Bijan Sartipi, et al

Federal Agencies

U.S. Environmental Protection Agency, Region 9 Administrator, Wayne Nastri; Radiation & Compliance Assurance, Michael Bandrowski, et al
U.S. Fish and Wildlife Service, Sacramento Field Office, Susan Moore, Chief Supervisor
U.S. Department of Energy, Berkeley Site Office, Aundra Richards, et al
U.S. Department of Energy, NEPA Compliance Officer – Oakridge Operations Office, Gary Hartman
U.S. Department of Energy, NEPA Representative - BSO, Kim Abbott
U.S. Department of Interior, National Park Service, Elaine Jackson-Retondo, Historian

Regional/County Agencies

Alameda County, Clerk-Recorder's Office, Patrick O'Connell
Alameda County, Supervisor District 5, Keith Carson
Alameda County, LAFCO, Executive Officer, Crystal Hishida Graff,
Alameda County, County Administrator, Susan Muranishi,
Alameda County, Health Care Agency, Public Health Officer, Dr.Anthony Iton, et al
Alameda County, Clerk to Board of Supervisors, Crystal Hishida Graff,
Alameda County, Planning Department, Agency Director, James Sorenson, et al
Metropolitan Transportation Commission, Executive Director, Steve Heminger,
Association of Bay Area Governments, Executive Director-Secretary Treasurer, Henry Gardner, et al
Bay Area Air Quality Management District, Executive Officer/APCO, Jack Broadbent, et al
Contra Costa County, Department of Health Services, Director of Public Health, Wendel Brunner,
East Bay Municipal Utilities District, General Manager, Dennis Diemer, et al
East Bay Regional Park District, General Manager, Pat O'Brien, et al

Cities

City of Berkeley

City of Berkeley, City Clerk, Pamyla Means, City Clerk
City of Berkeley, City Manager, Phil Kamlarz, and City Manager's Office et al
City of Berkeley, City Attorney, Manuela Albuquerque
City of Berkeley, Mayor Tom Bates
City of Berkeley, Council Members, Anderson, Capitelli, Maio, Moore, Olds, Spring, Worthington, Wozniak
City of Berkeley, Planning Department, Dan Marks, Director, et al
City of Berkeley, Toxics Management Division, Dr. Nabil Al-Hadithy
City of Berkeley, Energy Officer, Neal DeSnoo
City of Berkeley, Police Department, Doug Hambleton, Chief of Police
City of Berkeley, Fire Department, Deby Pryor, Fire Chief, et al
City of Berkeley, Assistant City Manager for Transportation

City of Berkeley Commissions

City of Berkeley, Community Environmental Advisory Commission, Nabil Al-Hadithy, Secretary
City of Berkeley, Community Health Commission, Kimi Sakashita, Secretary
City of Berkeley, Landmarks Preservation Commission, Janet Homrighausen, Secretary
City of Berkeley, Peace & Justice Commission, Manual Hector, Jr., Secretary
City of Berkeley, Parks, Recreation & Waterfront Commission, Virginia Aiello, Secretary
City of Berkeley, Planning Commission, Jordan Harrison, Secretary
City of Berkeley, Public Works Commission, Jeff Egeberg, Secretary
City of Berkeley, Solid Waste Management Commission, Tania Levy, Secretary
City of Berkeley, Transportation Commission, Secretary

City of Oakland

City of Oakland, Mayor Ron Dellums
City of Oakland, District 1, Jane Brunner, Councilmember
City of Oakland, City Attorney John Russo
City of Oakland, Planning and Zoning Division, Claudia Cappio, Planning & Zoning Director, et al
City of Oakland, City Clerk's Office, La Tonda Simmons, City Clerk
City of Oakland, City Administrator, Deborah Edgerly,
City of Oakland, Fire Department, Daniel Farrell, Fire Chief, et al

City of Albany

City of Albany, City Clerk, Jacqueline Bucholz
City of Albany, Administrator, Beth Pollard

El Cerrito and Kensington

El Cerrito Fire Department & Kensington Fire District, Mark Scott, Fire Chief

University of California Office of the President (UCOP)

UCOP, University Affairs, Bruce Darling, Senior Vice President
UCOP, Laboratory Administration, George Campbell, Acting Director, ES&H & ERWM,
UCOP, Office of General Counsel, Charles F. Robinson, University Counsel
UCOP, Office of Planning, Design, & Construction, John Zimmermann, Director, et al
UCOP, Facilities Administration, Michael Bocchichio, Assistant Vice President

UC Berkeley

UC Berkeley, Chancellor Robert Birgeneau
UC Berkeley, Executive Vice Chancellor, George Breslauer
UC Berkeley, Vice Chancellor for Research, Beth Burnside
UC Berkeley, Associate Chancellor and Chief of Staff, John Cummins
UC Berkeley, Facilities Services, Edward Denton, Vice Chancellor
UC Berkeley, Physical and Environmental Planning, Emily Marthinsen, Assistant Vice Chancellor, et al
UC Berkeley, Chancellor's Advisory Committee on Strawberry Creek, G. Mathias Kondolf
UC Berkeley, EH&S Division, Mark Freiberg, Director, et al
UC Berkeley, Office of Radiation Safety, Gregory Yuhas, Associate Director, et al
UC Berkeley, Community Relations, Irene Hegarty, Director
UC Berkeley, Lawrence Hall of Science, Elizabeth Stage, Director, et al
UC Berkeley, Botanical Garden, Paul Licht, Director, et al
UC Berkeley, Police Department, Victoria Harrison, Chief of Police
UC Berkeley, Campus Landscape Architect, Jim Horner
UC Berkeley, Emergency Services Manager, Tom Klatt
UC Berkeley, Residence Hall Assembly, Oriana Madrigal Zamora, President

Organizations

Berkeley Association of Realtors, Association Executive, Sally Dunker,
Berkeley Chamber of Commerce, Chief Executive Officer, Ted Garrett, et al
Campus Parnassus Neighborhood Association, President, Eric Arens
Committee to Minimize Toxic Waste, Co-Chair, Pam Sihvola, et al
Council of Neighborhood Associations/BANA, President, Marie Bowman
Downtown Berkeley Association, Executive Director, Deborah Badhia
Euclid-LeConte Neighbors, Jim Sharp et al
League of Women Voters BAE, President, Jinky Gardner, et al
Nyingma Institute, Program Director, Abbe Blum
Oakland Metropolitan Chamber of Commerce, President & CEO, Joseph Haraburda
Panoramic Neighborhood Association, President, Jerry Wachtel
Sierra Club, Group Chair, Kent Lewandowski
Urban Creeks Council, UCC Vice Chair, Carole Schemmerling
Friends of Strawberry Creek, Work Programs, Jennifer Pearson

Individuals and Neighbors

(Various)

Attachment A: Public Scoping Meeting

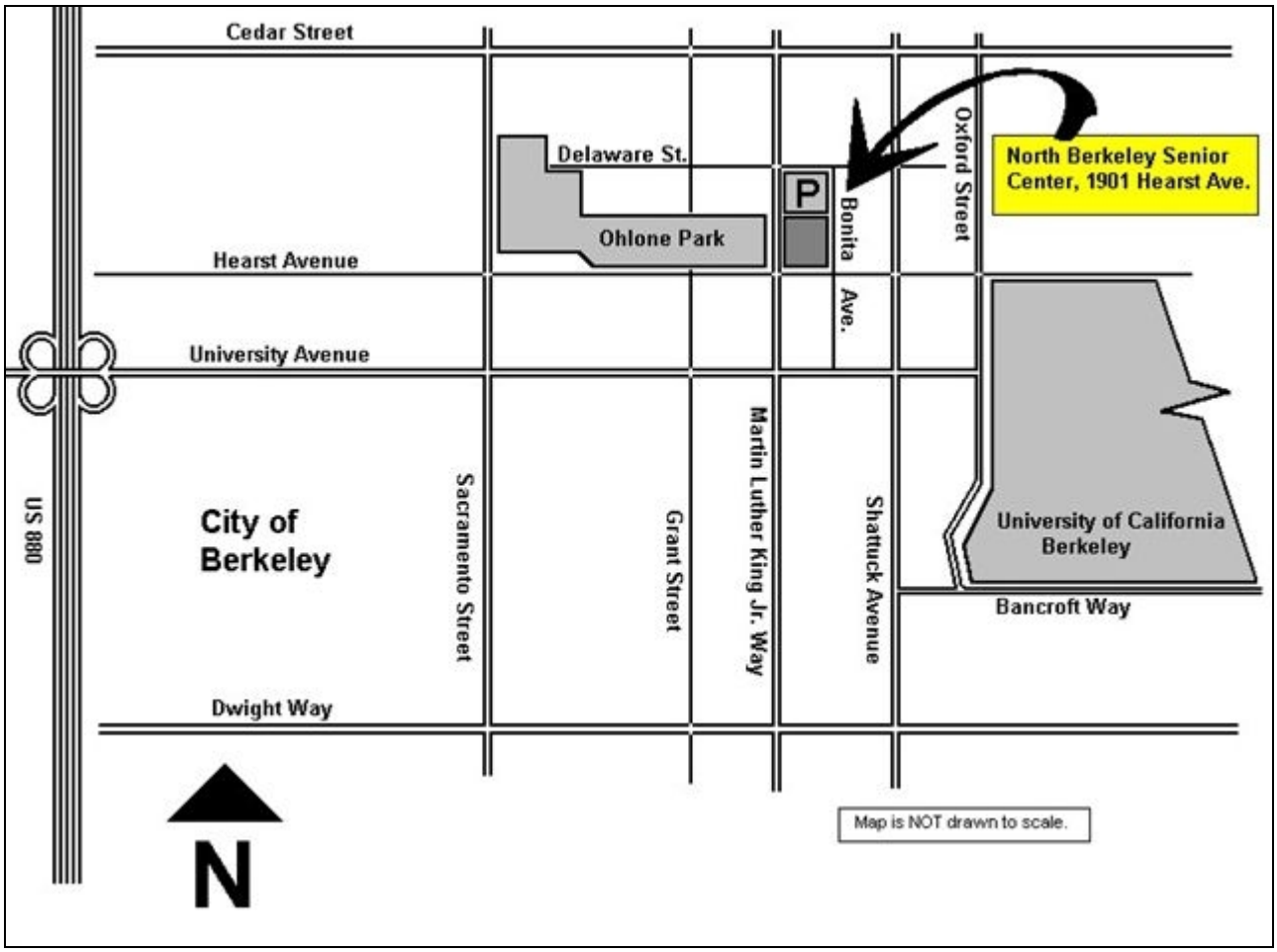
LBNL will hold a joint public scoping meeting open to all interested agencies and members of the public. The meeting is intended to present a brief overview of both the CRT and the Helios projects, to identify environmental resource areas to be analyzed in the Draft EIRs, and to invite public comments on the scope of the EIR analyses.

What: Joint Scoping Meeting for the CRT Facility Project EIR and the Helios Energy Research Facility Project EIR

When: **Wednesday,** August 8,, 2007

Where: North Berkeley Senior Center, 1901 Hearst Street, Berkeley

Parking: Parking is available at the Center and on surrounding streets (see map below)



1. ENVIRONMENTAL CHECKLIST/INITIAL STUDY

Computational Research and Theory (CRT) Facility Project

Project Title:	Construction and Operation of the Computational Research and Theory (CRT) Facility
Lead Agency:	University of California Lawrence Berkeley National Laboratory
Location:	Lawrence Berkeley National Laboratory One Cyclotron Road Berkeley, California 94720
Applicant:	See Lead Agency above.
Contact Person:	Jeff Philliber Environmental Planning Group Lawrence Berkeley National Laboratory One Cyclotron Road, MS 90J0120 Berkeley, CA 94720
Existing On-site Land Uses:	Vacant
Surrounding Land Uses:	The site designated for the CRT Facility is located on the western portion of the LBNL property, and is flanked on three sides by Buildings 70 and 70A to the east, the Building 50 complex to the north, and Cyclotron Road and the Blackberry Canyon entrance gate to the west. LBNL is surrounded by a mix of land uses including open space, institutional, residential, and commercial uses, including various laboratory and ecological centers, the UC Berkeley Campus, Tilden Regional Park, and residences.
Description of Project:	See Project Description in Section 3 of this Initial Study.

Interested and Responsible Agencies:

- Bay Area Air Quality Management District;
- California Department of Fish and Game; and
- San Francisco Bay Regional Water Quality Board.

2. INTRODUCTION

2.1 Initial Study

Pursuant to Section 15063 of the California Environmental Quality Act (CEQA) Guidelines (Title 14, California Code of Regulations, Sections 15000 et seq.), an Initial Study is a preliminary environmental analysis that is used by the lead agency as a basis for determining whether an Environmental Impact Report (EIR), a Mitigated Negative Declaration, or a Negative Declaration is required for a project. The *CEQA Guidelines* require that an Initial Study contain a project description; a description of the environmental setting; an identification of environmental effects by checklist or other similar form; an explanation of environmental effects; a discussion of mitigation for significant environmental effects; an evaluation of the project's consistency with existing, applicable land use controls; and the names of persons who prepared the study.

2.2 EIR Process

This environmental analysis is an Initial Study for the proposed Computational Research and Theory (CRT) Facility project (referred to as the "proposed project" or the "CRT project" throughout this document). The purpose of this Initial Study is to evaluate the potential environmental impacts of the proposed project to determine what level of additional environmental review, if any, is appropriate.

This environmental analysis incorporates by reference the Lawrence Berkeley Laboratory (LBNL) 2006 Long Range Development Plan (LRDP) EIR in accordance with Section 15150 of the *CEQA Guidelines*. The 2006 LRDP EIR anticipated a similar scale and type of development in the area where the proposed project is located, and evaluated the potential environmental impacts from that development. Therefore, the program-level analysis contained in the 2006 LRDP EIR was used in this Initial Study to support certain conclusions related to potential environmental impacts of the proposed project and to determine which potential environmental impacts need to be examined further.

The analysis contained in this Initial Study concludes that the proposed project would result in the following categories of impacts, depending on the environmental issue involved: no impact; less-than-significant impact; or potentially significant impact. As shown in the Determination form in Section 6 of this document and based on the analysis contained in this Initial Study, it has been determined that the proposed project may result in potentially significant impacts. An EIR will be prepared after circulation of this Initial Study in conjunction with a Notice of Preparation (NOP).

2.3 Public and Agency Review

This Initial Study and NOP for the CRT project will be circulated for public and agency review from July 26, 2007 to August 24, 2007. Copies of this document are available for review at the following locations and online at http://www.lbl.gov/community/CRT/

Copies of the 2006 LRDP and the 2006 LRDP EIR are available for review online at www.lbl.gov/Community/env-rev-docs.html or the following locations:

- Berkeley Public Library, 2090 Kittredge Street, 2nd Floor Reference Desk, Berkeley, CA 94704
- Berkeley Lab Main Library, One Cyclotron Road, Bldg. 50, Room 4034, Berkeley, CA 94720

Comments on this Initial Study must be received by 5:00 PM on Friday, August 24, 2007 and should be sent to:

Jeff Philliber
Environmental Planning Group Coordinator
Lawrence Berkeley National Laboratory
One Cyclotron Road, MS 90J0120
Berkeley, CA 94720

2.4 Project Approvals

As a public agency principally responsible for approving or carrying out the proposed project, the University of California is the Lead Agency under CEQA and is responsible for certifying the adequacy of the environmental document and approving the proposed project. It is anticipated that the Board of Regents of the University of California (The Regents) will consider approval of the proposed project in early 2008.

2.5 Organization of the Initial Study

This Initial Study is organized into the following sections:

Section 1 - Project Information: provides summary background information about the proposed project, including project location, lead agency, and contact information.

Section 2 - Introduction: summarizes the scope of the document, the project's review and approval processes, and the document's organization.

Section 3 - Project Description: presents a description of the proposed project, including the need for the project, the project's objectives, and the elements included in the project.

Section 4 - Environmental Factors Potentially Affected: addresses whether this Initial Study identifies any environmental factors that involve a significant or potentially significant impact that cannot be reduced to a less-than-significant level.

Section 5 - Determination: indicates whether impacts associated with the proposed project are significant and what, if any, additional environmental documentation is required.

Section 6 - Evaluation of Environmental Impacts: contains the Environmental Checklist form for each resource area. The checklist is used to assist in evaluating the potential environmental impacts of the proposed project. This section also presents a background summary for each resource area, and an explanation of all checklist answers.

Section 7 - References: lists references used in the preparation of this document.

Section 8 - Report Preparers: lists the names of individuals involved in the preparation of this document.

3. PROJECT DESCRIPTION

3.1 Introduction

Lawrence Berkeley National Laboratory is a multi-program national research facility operated by the University of California (UC) for the Department of Energy's (DOE) missions in fundamental sciences, energy resources, and environmental quality. LBNL's programs advance three distinct goals for DOE and the nation:

- To perform leading multidisciplinary research in the computing sciences, physical sciences, energy sciences, biosciences, and general sciences in a manner that ensures employee and public safety and protection of the environment;
- To develop and operate unique national experimental facilities for qualified investigators; and
- To transfer knowledge and technological innovations and to foster productive relationships among the LBNL research programs, universities, and industry in order to promote national economic competitiveness.

3.2 Project Summary

The project is the proposed development of a new Computational Research and Theory (CRT) Building Project. The proposed building would be constructed on an approximately 2.25-acre site, located on property owned by the University of California, within the Lab site and adjacent to the University of California at Berkeley. The project would include a multi-story, approximately 150,000 gross square foot (gsf) building and associated infrastructure (including cooling towers). The building would be constructed against the side of a slope, and at this time is expected to be approximately seven stories in height. The facility would provide new advanced computational equipment and office space to support UC Berkeley's academic programs in computational science and engineering and the needs of computer scientists, mathematicians, computer scientists and theoreticians who are currently engaged in high performance computing and high performance production computing and computational research. LBNL has a need to move the National Energy Research Scientific Computing (NERSC) Center from an offsite location in Oakland to the LBNL site in order to provide immediate access for researchers. The proposed lab would increase the amount of floor space compared to the existing facility (the Oakland Scientific Facility) in order to accommodate two NERSC systems at one time and anticipated growth in the Scientific Cluster Support area.

3.3 Project Location and Surrounding Uses

LBNL is situated in the eastern hills of the cities of Berkeley and Oakland in Alameda County, and is located on approximately 200 acres that are owned by the University of California and leased to the U.S. Department of Energy (DOE) (See **Figure 1, Regional Location**). Existing buildings on LBNL are used for heavy-duty laboratories, wet and dry laboratories, office space, and other uses.

The LBNL site is surrounded by a mix of land uses, including open space, institutional uses, and residential and neighborhood commercial areas. The University of California, Berkeley, including the Strawberry Canyon open space areas, lies south and southeast of the LBNL site. Residential neighborhoods and a small neighborhood commercial area in the City of Berkeley lie to the north and northwest, and regional open space, including the 2,000-acre Tilden Regional Park, lies to the northeast.

The site designated for the CRT Facility is located on the western portion of the LBNL property, and is flanked on three sides by Buildings 70 and 70A to the east, the Building 50 complex to the north, and Cyclotron Road and the Blackberry Canyon entrance gate to the west (see **Figure 2, Approximate Project Site**).

3.4 Project Site

The sloped terrain of the project site drops approximately 100 feet from east to west and is vegetated with approximately 30 eucalyptus and a few immature redwood and oak trees (less than 18-inches circumference when measured at a height of four feet above grade). No jurisdictional wetlands, intermittent waterways, drainages, or blue-line streams exist on the site. The site contains habitat suitable for various avian, bat, and reptile species. Although the project site is in close proximity of the Hayward Fault, a geologic fault investigation performed in September 2006 in conformance with the Alquist-Priolo Act revealed no traces of an active fault on the proposed project site. The site features a filtered San Francisco Bay view. The project site has a frontage on Seaborg Road and is within walking distance or a short shuttle bus trip of the UC Berkeley Physical and Computer Science Departments. The Building 50 stairway currently provides pedestrian access from the Blackberry gate to the Building 50 complex.

3.5 Project Characteristics

The proposed project includes the construction of a new building, adjacent cooling towers, a parking lot, pedestrian access, and installation of a new offsite electrical feeder. The approximately 150,000 gsf building would consist of one multi-story building or two connected multi-story buildings, including both a supercomputer equipment room and an office structure, with space for computing, offices, and conference rooms. The proposed building abuts a steep hillside, and the upper floor would be accessible from the existing parking lot that connects the building 50 and 70 complexes. As shown in **Figure 3, CRT Conceptual Site Plan**, the facility would have a main floor footprint of approximately 40,000 gsf and smaller floor areas for the upper floors. As proposed in the conceptual design, the project includes an outdoor urban plaza connected by a cascading stairway to a rooftop garden. This outdoor area would a shared space that would serve the CRT Facility and other existing buildings in the building 50 and 70 complexes.

The building site and size of the facility are consistent with the 2006 LBNL LRDP. The building would be designed in accordance with the LRDP Design Guidelines and respect the scale, rhythm, and patterns of the surrounding context by being responsive to its environment, architectural context, and solar orientation. Exterior materials would be chosen to be compatible with the surrounding neighborhood. A 50-foot no-build zone will be maintained from Blackberry Canyon, and a 40-foot setback will maintained from all adjacent structures to meet building code requirements and minimize the impact of the new development on adjoining neighborhoods. The building would be less than 75 feet high. A detailed description of the conceptual project design is provided below.

3.5.1 Supercomputer Facilities (Equipment Floors)

The supercomputer equipment level would consist of two machine floor areas totaling approximately 32,000 assignable square feet (asf)[1] . Additional space would be provided for loading, storage, and

1 Assignable square feet is the total floor or surface area of a room assigned to or available for assignment to an occupant or specific use. It does not include common areas such as restrooms, hallways, or mechanical space.

support functions for the machine floors. This contiguous floor would be largely column-free and would have additional headroom to maximize flexibility in configuring future supercomputer arrays. A raised floor system would provide access to data and electrical cabling, and would also serve as a supply air chase for air-cooled equipment. Secondary electrical distribution would be accomplished either within the raised floor area or via floor mounted Power Distribution Units. Self-contained substations located at the exterior of the machine floor would provide primary electrical distribution.

3.5.2 Office Facilities

The offices would rise approximately four stories above the machine floor level and would provide a variety of general office, computer configuration and support, software support, videoconferencing, meeting, and visualization laboratory spaces. Specifically, the Visualization lab is a 300 or 400 square-foot room that would accommodate up to 40 people, with back projection so that output from the computational calculations can be generated to show pictures of visual models to be analyzed. The office floors range in size from 14,000 to 18,000 asf. Fixed building areas such as stairs, toilet cores, elevator shafts, and structural framing would be designed to support reconfiguration of the research facility expected throughout the life of the building. The building would support a variety of workplace settings from largely open office spaces to largely private office. It is anticipated that the facility interior design would accommodate approximately 40 percent to 80 percent private office layouts.

3.5.3 Cooling Towers

Machine floor and office building cooling would be provided by a high-efficiency cooling tower farm and chiller outbuilding located to the east of the proposed CRT building. This system would serve liquid and/or air-cooled computational equipment.

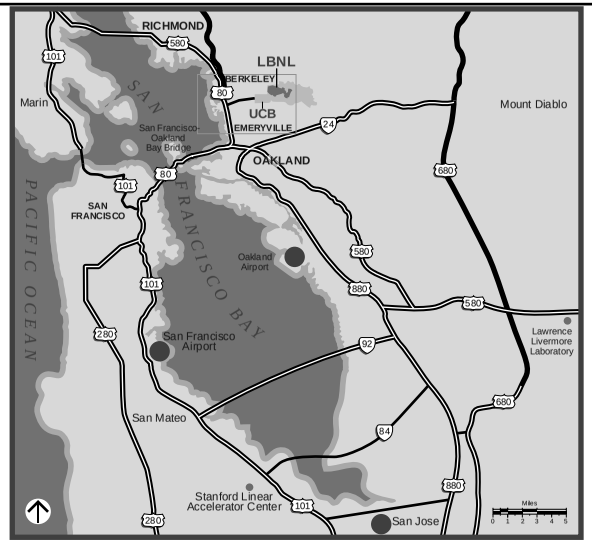
3.6 Access and Parking

Automobile access to the project site would be from Cyclotron Road. Pedestrians would access the project site from Cyclotron Road via the Seaborg stairs (or Building 50 stairs), which connect Cyclotron Road to the upper plaza. Approximately four parking spaces would be provided for disabled guests near the proposed building. Additional, limited-time parking spaces would be provided for use by delivery and maintenance vehicles. No additional new parking spaces would be included in the project. Staff parking would be provided in the existing parking lots. The site is within 500 feet of both the Horseshoe Parking Lot F to the south and Blackberry Canyon Parking Lot D to the north.

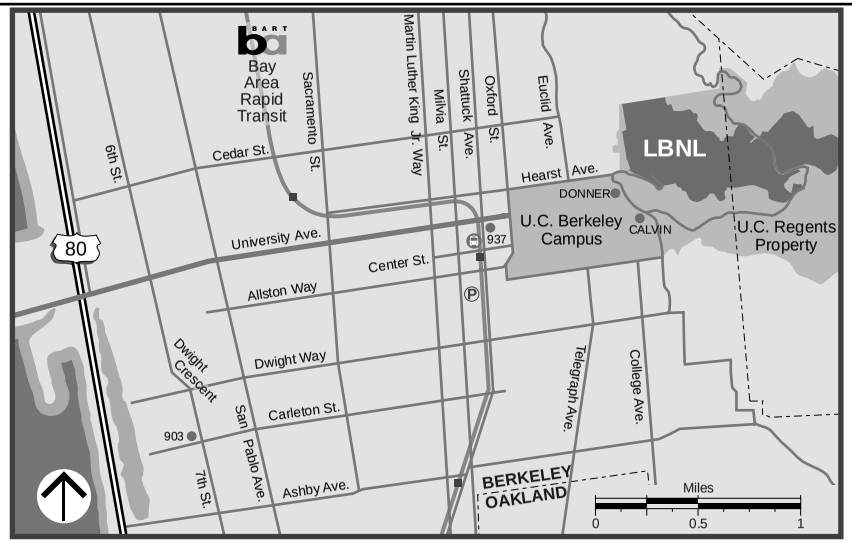
Guests, employees and suppliers of services would be provided access to the site under the same policies and procedures that exist today. No changes to the Laboratory's security and safeguards are anticipated.

3.7 Utilities and Infrastructure

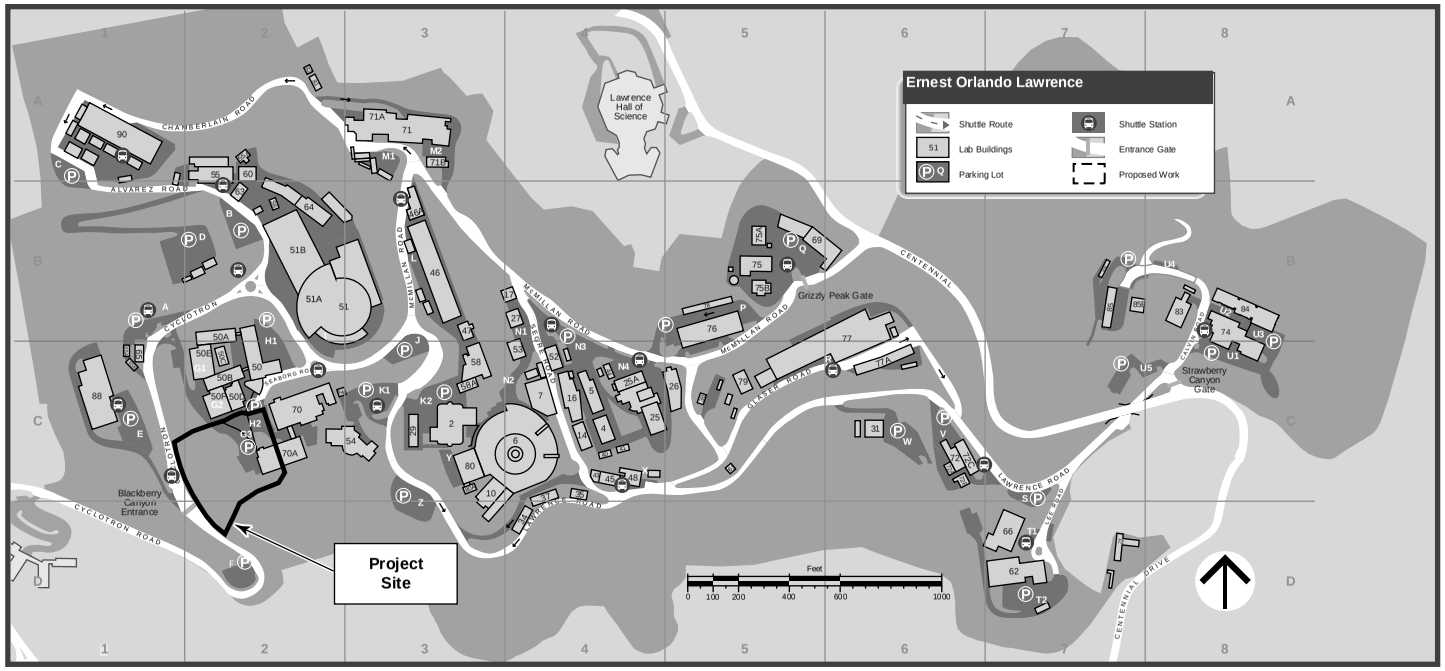
Infrastructure improvements would be necessary for water, sanitary sewer services and storm drainage. The project would connect to an existing water main located in Seaborg Road. Sanitary sewer service would be provided by a connection to the existing main in Cyclotron Road. The storm drain system would include roof drains, overflow drains and interior downspouts that would be connected to the existing onsite storm drain system.



LBNL Regional Location



LBNL Local Location



LBNL Site

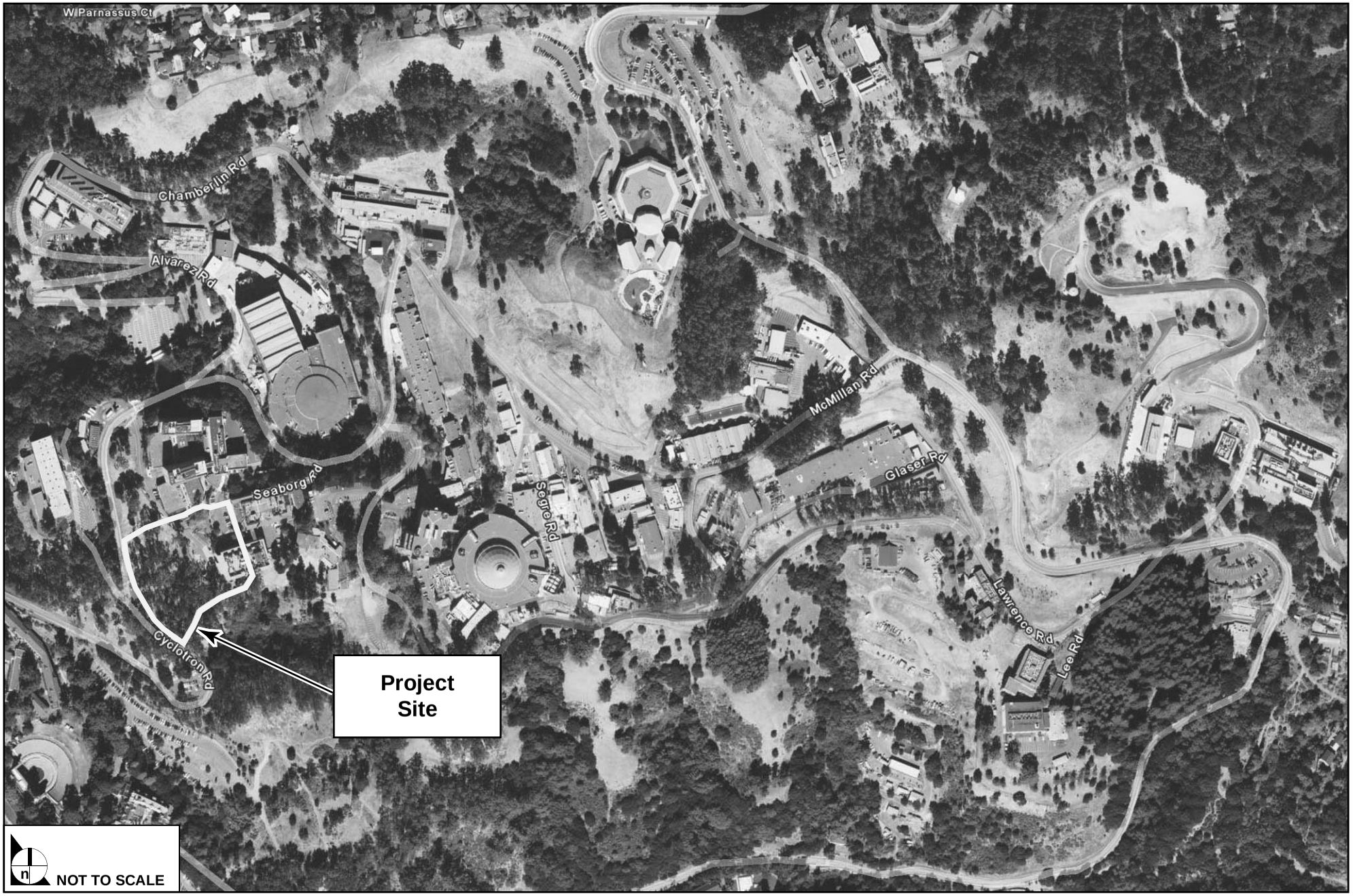
NOT TO SCALE

SOURCE: Lawrence Berkeley National Laboratory, 2004

FIGURE **1**

Regional Location Maps

924-002•07/07

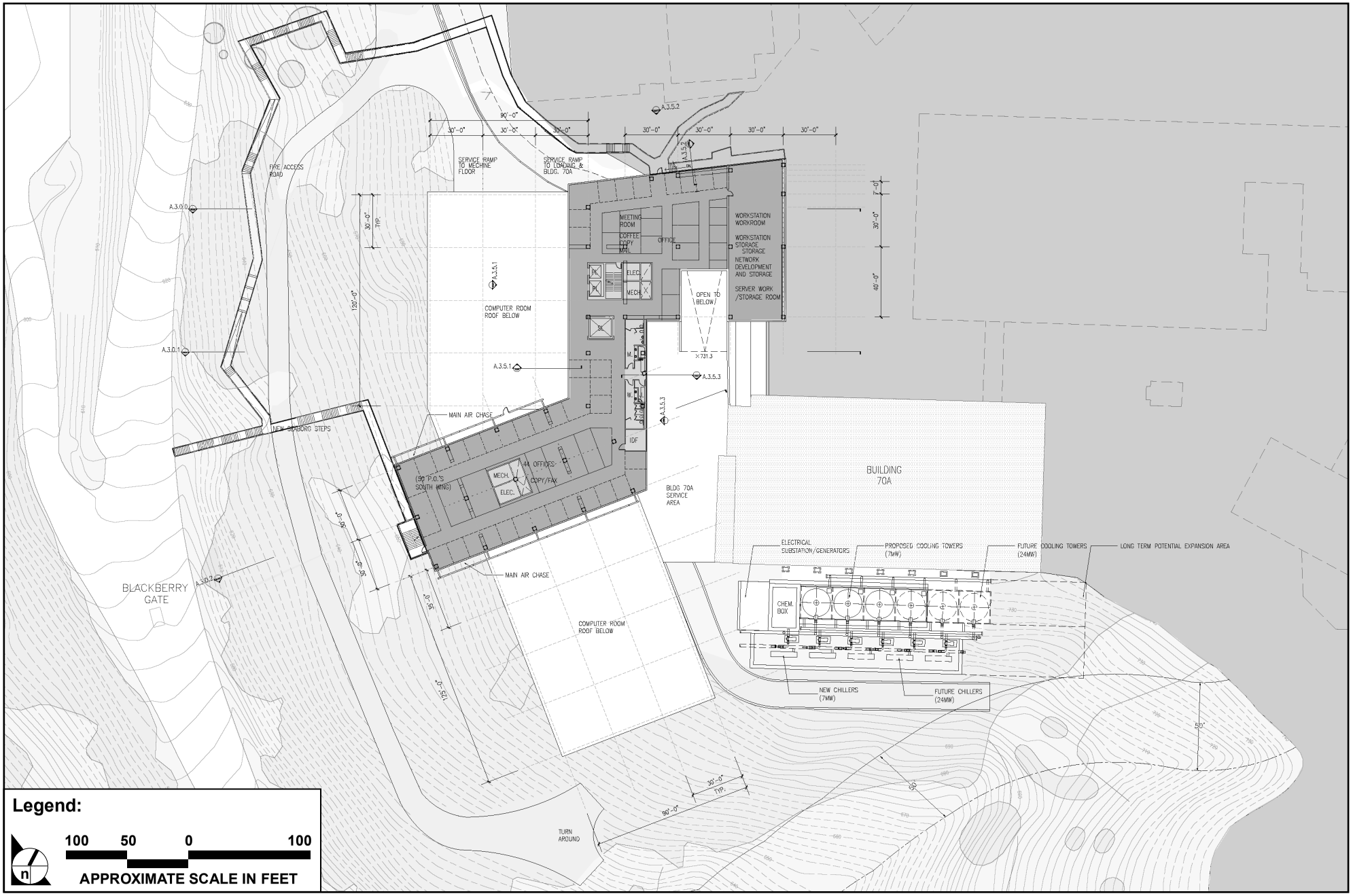


SOURCE: Google Earth - July 2007, Impact Sciences, Inc. - July 2007

FIGURE **2**

Approximate Project Site

924-002•07/07



SOURCE: RMW - January 2007

FIGURE **3**

CRT Conceptual Site Plan

924-002•07/07

The projected initial electrical power load of the CRT is 7.5 megawatts (MW), with an allowable total load of approximately 17 MW. To accommodate this large load, power would be brought to the building in a medium-voltage underground duct bank from the existing Grizzly Peak Substation. .

Emergency power requirements would be served by an outdoor 250 kilowatt (kW) diesel-powered generator. A separate Standby Power and Uninterruptible Power Supply system would be provided for the designated critical computational loads. In addition, two 750-kilovolt-ampere (kva) Uninterruptible Power Supply Systems would supply up to 30 minutes of power to provide a controlled shutdown of the high-performance computer equipment during a power outage. Such systems use batteries to maintain power supply to equipment in the event of a power failure.

Other than electricity, major utilities and public services are available in the immediate area. The CRT Facility will meet or exceed the UC Policy on Sustainable Practices.

3.8 Project Population

The proposed CRT Facility would accommodate approximately 300 employees, of which approximately 225 would be LBNL staff and 75 would be UC Berkeley staff and students. Of the approximately 225 LBNL staff, about 135 would be existing staff relocated from the adjacent Building 50 Complex, 70 would relocated from an offsite LBNL facility, and approximately 20 staff would be new or relocated LBNL staff. Therefore, the CRT facility would add up to approximately 90 additional staff to the Lab site.

3.9 Construction Schedule

At this time, it is anticipated that construction would begin in mid-2008 and would last approximately 27 months. The project would be constructed in two phases, with the building and infrastructure to be completed in the first phase and additional interior construction to accommodate new computer systems in the second phase.

4. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

X	Aesthetics		Agricultural Resources
X	Air Quality	**X**	Biological Resources
	Cultural Resources	**X**	Geology / Soils
X	Hazards	**X**	Hydrology and Water Quality
	Land Use and Planning		Mineral Resources
X	Noise		Population and Housing
	Public Services		Recreation
X	Transportation/Circulation	**X**	Utilities and Service Systems
X	Mandatory Findings of Significance		

5.0 DETERMINATION

On the basis of this initial evaluation:

_____ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

_____ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the proposed proponent. EITHER A MITIGATED NEGATIVE DECLARATION OR ENVIRONMENTAL IMPACT REPORT will be prepared.

_____ I find that the proposed project MAY have a significant effect on the environment and an ENVIRONMENTAL IMPACT REPORT is required.

__X__ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measure based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT will be prepared.

Signature: _____ Date: 7/26/07

Jeff Philliber, LBNL Environmental Planning Group Coordinator

6. EVALUATION OF ENVIRONMENTAL IMPACTS

Introduction

The following Environmental Checklist form is based on Appendix G of the CEQA Guidelines. The checklist has been adapted based on the analyses presented in the 2006 LRDP EIR to assist in evaluating the environmental effects of the proposed project with respect to the analysis in the 2006 LRDP EIR.

Project Impacts

The Environmental Checklist identifies potential project effects as corresponding to the following categories of impacts:

- Potentially Significant Impact: An effect that was either not previously addressed in the 2006 LRDP EIR or was addressed at a program-level and may be significant based on substantial evidence and the significance criteria for the proposed project. If the project may result in one or more Potentially Significant Impacts, an EIR is required.
- Less than Significant with Mitigation Incorporated: An effect that was not previously addressed in the 2006 LRDP EIR but, with the implementation of project-specific mitigation measures, is reduced from potentially significant to a less than significant level.
- Less-than-Significant Impact: An effect for which no significant impacts, only less than significant impacts, would result because LRDP mitigation measures are already incorporated into the proposed project.
- No Impact: The project would not create an impact.

Cumulative Impacts

For those impacts that were determined to be less than significant, a summary of cumulative impacts is presented in this Initial Study. For those impacts that will be discussed in further detail in the project-level EIR, a cumulative analysis will be presented in the EIR.

2006 LRDP EIR Analysis and Mitigation Measures

The 2006 LRDP EIR evaluated environmental impacts of Lab development under the LRDP using an Illustrative Development Scenario, which was a conceptual portrayal of the likely development under the 2006 LRDP. The proposed project is within the scope of analysis of the 2006 LRDP EIR. Relevant mitigation measures in the 2006 LRDP EIR have been incorporated into the proposed project planning and design. The full text of the 2006 LRDP EIR mitigation measures is presented in Appendix A.

6.1 Aesthetics

6.1.1 Background

Section IV.A of the 2006 LRDP EIR addresses the aesthetic effects of Lab growth under the 2006 LRDP through 2025 and is incorporated by reference in this Initial Study for this project pursuant to CEQA Guidelines Section 15150. The following discussion summarizes information presented in the 'Setting' subsection of Section IV.A of the 2006 LRDP EIR and describes the project site and relevant aspects of the project.

LBNL

The LBNL site is located on the steeply sloping hillsides of the Berkeley-Oakland hills, rising from an elevation of about 500 feet near the Blackberry Canyon Gate entrance to about 1,000 feet at the northern border of the site. The hills provide a semi-natural, vegetated open space backdrop to the Lab site. The hills are wooded with native stands of oaks and California bay and with introduced eucalyptus and conifers. As discussed in the 2006 LRDP EIR, the entire LBNL site cannot be viewed from any single off-site vantage point. However, portions of the Lab site are visible from residential neighborhoods, public roadways, and public vantage points in the areas that adjoin the Lab. Views of individual buildings or groups of buildings are available from public vantage points such as Memorial Stadium, the Lawrence Hall of Science, and Grizzly Peak Road. As described in the LRDP EIR, portions of the Lab site are visible in medium range views (less than 1 mile) from nearby elevated off-site locations such as the residential neighborhoods in the north and northwestern portions of the City of Berkeley. Long-range views (greater than 1 mile) are available from downtown Berkeley and the Berkeley Marina.

The visual character of the Lab's built environment is eclectic. Many buildings display an industrial look and utilitarian quality. Many buildings are painted in neutral colors to blend with the natural setting. Some of the buildings are recognizable landmarks, including Building 50 and the Advanced Light Source, both of which are also visible from off-site locations.

Some amount of nighttime lighting is produced on the site as a result of interior and exterior lighting associated with the Lab buildings, roadways, and parking lots. All buildings and parking areas are equipped with downward-directed light fixtures for nighttime lighting.

Project Site

The CRT project site is located on the hillside slope immediately north of the Blackberry Canyon Gate. The project site is currently occupied by a grove of eucalyptus, pine, and a few immature oak and redwood trees. Partial views of the site are available from portions of the UC Berkeley campus and the City to the south and southeast. These views of the site are screened by the trees on and to the south of the site. Views of the site from other directions are obstructed by topography, other buildings, and tree cover.

6.1.2 2006 LRDP EIR Analysis

The 2006 LRDP EIR evaluated visual impacts of Lab development under the LRDP utilizing an Illustrative Development Scenario, which was a conceptual portrayal of the likely development under the 2006 LRDP. That illustrative scenario assumed new buildings in the general area that is now being considered for the location of the CRT project. The LRDP EIR analysis determined that Lab development

could result in a significant and unavoidable impact on scenic vistas and resources (LRDP Impact VIS-1), and significantly affect site character (LRDP Impact VIS-2), but would not result in significant impacts related to light and glare or due to construction activities.

The proposed project is within the scope of analysis of the 2006 LRDP EIR. Relevant mitigation measures in the 2006 LRDP EIR have been incorporated into the proposed project planning and design and will be implemented during project operations consistent with LRDP or project-specific mitigation monitoring requirements.

6.1.3 Environmental Checklist and Discussion

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

DISCUSSION:

a. **Potentially Significant Impact.** The 2006 LRDP EIR discusses effects on scenic vistas under LRDP Impacts VIS-1 and VIS-2. While there are no officially designated scenic vistas in the 2006 LBNL LRDP, the hillside where the project would be located could be considered a scenic vista from off-site locations. Project-related development on-site may be noticeable from numerous off-site viewpoints, including locations on the UC Berkeley Campus, the Lawrence Hall of Science, and segments of Grizzly Peak Boulevard. The proposed project would include removal of existing vegetation, including approximately 30 eucalyptus trees and oak trees and addition of a computational center and office structure that would reach up to 75 feet in height. The addition of these visual elements and removal of key screening trees could substantially alter the existing visual character of the project site and the surrounding portion of the Berkeley hills, which is characterized by a mix of buildings surrounded by trees, foliage, and natural-appearing topography. A measure of effect from viewpoints uphill would be whether the new building would block or substantially detract from panoramic, long-range views of the San Francisco Bay and distant skyline.

Development in the area where the proposed project is located was anticipated under the 2006 LRDP EIR. That analysis contained preliminary visual simulations that showed that future development where the CRT project is proposed would be visible from off-site locations. The LRDP EIR concluded that Impact VIS-2 would be significant and unavoidable. Although this impact is adequately addressed in the 2006 LRDP EIR, as more design detail has become available, the CRT project EIR will contain visual simulations that show project characteristics and will include a discussion of project-specific impacts.

b. **No Impact.** The Initial Study prepared as part of the LRDP EIR scoping process concluded that development on the LBNL site would have no impact on scenic resources. Regional access to the project site is provided by Interstate Highways 80 and 580, and State Routes 24 and 13. The California Department of Transportation has designated 8.9 miles of Highway 24, from the eastern portal of the Caldecott Tunnel to I-680 near Walnut Creek, as a Scenic Highway under the California Scenic Highway Program. No resources on the LBNL site are within or in the vicinity of a state scenic highway. Therefore, no impact would occur to a state scenic highway as a result of the proposed project and the topic will not be discussed further in the CRT project EIR.

c. **Potentially Significant Impact.** The 2006 LRDP EIR addresses impacts associated with degradation of visual character or quality under LRDP Impact VIS-1 and VIS-3. LRDP Impact VIS-1 specifically evaluated impacts to visual character related to construction activity. Because construction would be temporary in nature, this impact was determined to be less than significant and no mitigation measures were imposed. The proposed project would involve grading and construction of an undeveloped site. The visual impact related to construction activity for the proposed project would be less than significant because it would be a temporary change in visual character for the area.

Because the specific locations and designs of all future buildings were not available, the 2006 LRDP EIR evaluated the overall change in visual character based on an Illustrative Development Scenario. This scenario assumed that a new building would be constructed in the area of the proposed project. The 2006 LRDP EIR included a visual simulation of this assumed development as observed from nearby residential areas, and conservatively concluded that the impact on visual quality and character would be significant and unavoidable. As a conceptual detailed design of the CRT project is now available, a project-specific discussion will be included in the CRT project EIR.

d. **Potentially Significant Impact.** The proposed project would generate additional light in several ways, including light from the interior of the building that would be visible through building windows and lighting fixtures that would be affixed to outdoor areas at the building entry or around building perimeters. The 2006 LRDP EIR evaluated potential light and glare impacts from the proposed development of the Lab site (LRDP Impact VIS-4), and concluded that with mitigation the impact would be less than significant. Although the proposed project is within the 2006 LRDP scope of development, and more detailed design information shows that the impact of the proposed project is adequately addressed in the 2006 LRDP EIR and will be reduced to a less-than-significant level with implementation of LRDP mitigation measures, the light and glare impact will be further discussed in the CRT project EIR.

6.2 Agricultural Resources

6.2.1 Background

The Initial Study for the 2006 LRDP, prepared as part of the EIR scoping process, concluded that development on the Lab site would have no impact to agricultural resources. The LBNL site does not contain land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland). No active agricultural lands exist on the site and there are no parcels under a Williamson Act Contract. Therefore, development on the LBNL property in accordance with the 2006 LRDP would not result in zoning conflicts or conversion of farmland to non-agricultural uses. No impact would occur. Because development on Lab would not result in the loss of agricultural lands or conflict with Williamson Act contracts or other existing zoning for agricultural use, the 2006 LRDP EIR did not identify any standards of significance, impacts, or mitigation measures associated with impacts to agricultural resources.

6.2.2 Environmental Checklist and Discussion

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
AGRICULTURAL RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒

DISCUSSION:

a.-c. **No Impact.** The project site is located in a developed area. According to the Initial Study prepared for the 2006 LRDP EIR, there are no Williamson Act Contracts within the boundaries of LBNL. The project would not result in the conversion of farmland to a non-agricultural use on-site and off-site because there is no farmland within LBNL or in the vicinity of the Lab. Therefore, implementation of the project would not impact agricultural resources, and no further analysis is required.

6.3 Air Quality

6.3.1 Background

Section IV.B of the 2006 LRDP EIR addresses the air quality effects of Lab growth under the 2006 LRDP through 2025 and is incorporated by reference in this Initial Study for this project pursuant to *CEQA Guidelines* Section 15150. The following discussion summarizes information presented in the 'Setting' subsection of Section IV.B of the 2006 LRDP EIR.

The project area is subject to air quality planning programs developed in response to both the Federal Clean Air Act (CAA) and the California Clean Air Act (CCAA). In the campus vicinity, within the San Francisco Bay Area, air quality is monitored, evaluated, and regulated by the U.S. Environmental Protection Agency (EPA), the California Air Resources Board (CARB), and Bay Area Air Quality Management District (BAAQMD).

LBNL

The Lab is located in Alameda County, which, along with eight other counties, is within the San Francisco Bay Area Air Basin (SFBAAB or Basin).

Air pollutants typically are categorized as criteria pollutants or toxic air contaminants (TACs). The criteria pollutants are those regulated at the federal level by US EPA and at the state level by CARB. These include ozone (O3), respirable particulate matter (PM10), fine particulate matter (PM2.5), carbon monoxide (CO), oxides of nitrogen (NO2), sulfur dioxide (SO2), and lead (Pb). O3 is a secondary pollutant formed during photochemical reactions with precursor pollutants. As such, O_3 is measured by assessing emissions of its precursors, Reactive Organic Gases (ROG) and NO_2.

Air pollutants are emitted by a variety of sources, including mobile sources such as automobiles; stationary sources such as manufacturing facilities, power plants, and laboratories; and area sources such as homes and commercial buildings. Sources of criteria pollutants at the Lab include automobiles and heating equipment.

TACs are airborne pollutants for which there are no air quality standards but that are known to have adverse human health affects. Examples include aromatic and chlorinated hydrocarbons, certain metals, and asbestos. Adverse health effects can be carcinogenic, short-term (acute) noncarcinogenic, and long-term (chronic) noncarcinogenic. TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources such as automobiles and trucks, particularly diesel-fueled vehicles; and area sources, such as farms, landfills, construction sites, and residential areas. Sources of TACs around the Lab include diesel buses and trucks; laboratory vent emissions; boilers in individual buildings; emergency generators; and painting operations.

While some of the air pollutants that are emitted need to be examined at the local level, others are predominantly an issue at the regional level. For instance, O_3 is formed in the atmosphere in the presence of sunlight by a series of chemical reactions involving Nox and ROG. Because these reactions are broad-scale in effects, ozone typically is analyzed at the regional level (i.e., in the Basin) rather than the local level. On the other hand, other air pollutants such as SO_2, PM_{10}, $PM_{2.5}$, CO, Pb, and TACs are a potential concern in the immediate vicinity of the pollutant source because these pollutants are emitted directly or are formed close to the source. Therefore, the study area for emissions of SO_2, PM_{10}, $PM_{2.5}$, CO,

Pb, and TACs is the local area nearest the source, such as in the vicinity of congested intersections, whereas the study area for regional pollutants such as Nox and ROG is the entire Basin.

Air quality in the Basin is monitored by the BAAQMD and CARB. Based on pollutant concentrations measured at monitoring stations within the Basin, the SFBAAB is classified as being in attainment or non-attainment of federal and state air quality standards. The Basin is in attainment or unclassified for all federal and state standards except for the state and federal O_3 standards and the state standards for particulate matter. The SFBAAB is designated nonattainment for the state O_3 1-hour standard, nonattainment for the federal O_3 8-hour standard, and nonattainment for the state PM_{10} and state $PM_{2.5}$ standards.

Some groups of people are considered more sensitive to adverse effects from air pollution than the general population. These groups are termed sensitive receptors. Sensitive receptors include children, the elderly, and people with existing health problems, who are more often susceptible to respiratory infections and other air quality-related health problems. Schools, childcare centers, hospitals, and nursing homes are all considered sensitive receptors. Air pollution impacts are assessed, in part, based on potential effects on sensitive receptors.

Project Site

The project site is not within 1/4 mile of any sensitive receptors. There are no hospitals or nursing homes in the project vicinity. Vehicles are the primary sources of air pollution in the vicinity of the project site. Other sources of emissions in the vicinity of the project site include emergency generators associated with various existing buildings, and fume hoods located in laboratories, which are vented to the roofs of laboratory buildings.

6.3.2 2006 LRDP EIR Analysis

Consistent with BAAQMD Guidelines, the 2006 LRDP EIR evaluated the impact of the LRDP on air quality by focusing on the plan's consistency with the most recently adopted air quality plan (in this case the Bay Area 2005 Ozone Strategy Plan). The 2006 LRDP EIR did not evaluate odor impacts because there is no history of odor complaints from LBNL and the site is fairly distant from off-site receptors.

Impacts on air quality from Lab growth under the 2006 LRDP through 2025 are evaluated in Section IV.B of the 2006 LRDP EIR. The analysis concluded that all air quality impacts would be either less than significant or less than significant with mitigation with one exception. With respect to LRDP Impact AQ-6, the 2006 LRDP EIR concluded that even though cumulative emissions of TACs would decrease, implementation of the 2006 LRDP in combination with other contributing projects would produce cumulative emissions of TACs that would result in an excess cancer risk that exceeds 10 in 1 million.

The proposed project is within the scope of analysis of the 2006 LRDP EIR. Relevant mitigation measures in the 2006 LRDP EIR have been incorporated into the proposed project planning and design and will be implemented during project operations consistent with LRDP or project-specific mitigation monitoring requirements.

6.3.3 Environmental Checklist and Discussion

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☒	☐	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	☒	☐	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?		☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒
f) Expose people to substantial levels of toxic air contaminants (TACs), such that the exposure could cause an incremental human cancer risk greater than 10 in one million or exceed a hazard index of one for the maximally exposed individual?	☒	☐	☐	☐

DISCUSSION

a.-c. **Potentially Significant Impact.** The project site is located in the SFBAAB, which is currently designated a non-attainment area for PM_{10} and ozone. Project-related increases in LBNL employees, laboratory space, equipment, and construction activities would be likely to add incrementally to regional ambient air pollutant emissions including short- and long-term emissions of criteria air pollutants from mobile and stationary sources, including PM_{10} and ozone. LRDP Impact AQ-1 identified construction emission of fugitive dust as a potentially significant impact. The BAAQMD has developed mitigation measures to

reduce the fugitive dust impact for construction activities. These measures and additional construction mitigation identified in the 2006 LRDP EIR will be discussed in the CRT project EIR. The 2006 LRDP EIR discusses potential impacts related to emissions of criteria pollutants from increases in traffic and stationary sources under the 2006 LRDP under LRDP Impact AQ-2, and evaluated the impact both relative to the potential for the LRDP to conflict with regional air quality plans and also in terms of total emissions of criteria pollutants that would result from LRDP related growth. LRDP Impact AQ-2 found that the total emissions from the buildout of the 2006 LRDP would be below the BAAQMD thresholds for criteria pollutants. The 2006 LRDP EIR therefore concluded that no individual project proposed under the 2006 LRDP would result in air emissions in excess of BAAQMD thresholds and no further evaluation would be necessary. Although the proposed project is within the scope of development of the 2006 LRDP, the project-specific impact will be further discussed in the CRT project EIR.

d. **Less than Significant Impact.** The 2006 LRDP EIR evaluated the potential for traffic associated with full development under the 2006 LRDP to expose sensitive receptors to high carbon monoxide (CO) concentrations in the area of congested intersections (LRDP Impact AQ-3) and other pollutants. The analysis concluded that the CO concentrations would not exceed air quality standards. The 2006 LRDP EIR also found that individual projects under the 2006 LRDP would not cause an exceedance of an air quality standard for CO. Because the impact was adequately analyzed in the 2006 LRDP EIR, no further project-level analysis is required.

e. **No Impact.** There is no history of odor complaints from LBNL and the Lab site is fairly distant from off-site receptors. Ongoing activities from the proposed project are not expected to create nuisance or objectionable odors affecting substantial numbers of people, particularly off-site. Therefore no impact related to objectionable odors would occur and no further analysis is required.

f. **Potentially Significant Impact.** The 2006 LRDP EIR included a health risk assessment that evaluated the impact related to incremental carcinogenic and non-carcinogenic human health risk from exposure to TACs associated with Lab growth (LRDP Impact AQ-4) and cumulative growth in TACs (LRDP Impact AQ-6). This analysis assumed the operation of a similar sized research laboratory in the general area where the CRT project is currently proposed. The 2006 LRDP EIR found LRDP Impact AQ-4 to be less than significant with mitigation. However, the EIR concluded that the cumulative impact related to TACs (LRDP Impact AQ-6) would be significant and unavoidable. Although the minor sources of TAC emissions associated with the CRT project were included in the Lab-wide HRA and the risk from this proposed facility is already accounted for in the 2006 LRDP EIR analysis, a project-specific impact will be discussed in the CRT project EIR.

6.4 Biological Resources

6.4.1 Background

Section IV.C of the 2006 LRDP EIR addresses the effects on biological resources from Lab growth under the 2006 LRDP through 2025 and is incorporated by reference in this Initial Study for this project pursuant to *CEQA Guidelines* Section 15150. The following discussion summarizes information presented in the 'Setting' subsection of Section IV.C of the 2006 LRDP EIR as it relates to the proposed project.

LBNL

Similar to other developed areas in the Berkeley-Oakland hills, the Lab site is characterized by clusters of development interspersed with open space that contains a mosaic of vegetation types and wildlife habitats, including oaks and mixed hard wood forests, native and non-native grasslands, chaparral, coast scrub, marsh and wetland communities, and riparian scrubs and forests. Grasslands are the predominant plant community and make up approximately 67 acres of the Lab site. Grasslands consist mostly of annual grasses either as open grassland or as an understory in relatively open eucalyptus and pine stands. Eucalyptus stands are the second most dominant plant community with approximately 22 acres under such stands. Oak-Bay woodland is found on about 12 acres of the site and consists of a mix of coast live oaks and California bay. Coast live oak woodland occurs over 9 acres at the Lab and California bay woodland occurs on 5.5 acres of the site, and is concentrated mainly in the drainages. Coastal scrub occurs on approximately 8.5 acres at the Lab and includes both California sagebrush scrub and coyote brush scrub. Developed areas at the Lab have been landscaped with non-native ornamentals in the past and native and drought resistant plants in recent years.

The 2006 LRDP EIR evaluated the potential for the Lab site to support special status plant and wildlife species. Based on the evaluated, the EIR noted that five special status plant species and 21 special status wildlife species had at least a moderate potential to occur on the Lab site. The EIR also determined that four habitats at the Lab site qualified as sensitive habitats, including known habitat of Lee's micro-blind harvestman, potential Alameda whipsnake habitat, critical Alameda whipsnake habitat, and riparian and wetland habitat.

Project Site

The CRT project site is located on a hillside occupied by a stand of eucalyptus and pine trees with an understory of annual grassland. Portions of the site have been previously disturbed in conjunction with the construction of the nearby buildings. A small intermittent drainage is located approximately 50 feet to the east of the project site.

6.4.2 2006 LRDP EIR Analysis

Impacts on biological resources from Lab growth under the 2006 LRDP through 2025 are evaluated in Section IV.C of the 2006 LRDP EIR and are incorporated herein by reference. The LRDP EIR analysis concluded that all impacts to biological resources would either be less than significant or would be reduced to a less than significant level with the proposed mitigation.

The proposed project is within the scope of analysis of the 2006 LRDP EIR. Mitigation measures in the 2006 LRDP have been incorporated into the proposed project planning and design, and will be

implemented during project operations consistent with LRDP or project-specific mitigation monitoring requirements.

6.4.3 Environmental Checklist and Discussion

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
BIOLOGICAL RESOURCES – Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

DISCUSSION

a. **Potentially Significant Impact.** There may be suitable habitat for the Alameda whipsnake, Fringed and Long-Eared Myotis, and other plant and animal special-status species on or in the vicinity of the project site. In 2000, the U.S. Fish and Wildlife Service (USFWS) designated a substantial portion of the eastern LBNL site as critical habitat for the Federally threatened Alameda whipsnake species. There have never been reported sightings of the Alameda whipsnake at LBNL. A previous LBNL survey prepared by a whipsnake specialist designated most of the USFWS designated land as not "colonizable" by the Alameda whipsnake species (LRDP 2007). In 2003, the critical habitat listing for the Alameda whipsnake was vacated for the LBNL site. A relatively small area of LBNL (about 5 acres) had been designated as Critical Habitat for the species. This area is located at LBNL's eastern end, distant from the project site. However, LBNL continues to evaluate all undeveloped portions of the LBNL site with respect to sensitive habitat for the Alameda whipsnake.

Due to the nationwide decline of bat populations, a number of bat species have been listed by the USFWS as species of special concern. Both the Fringed and Long-Eared Myotis are bat species of concern that may occur at LBNL. These bats use crevices in exfoliating tree bark and/or hollow cavities located in trees at LBNL, as well as abandoned buildings.

Potential impact to special status wildlife species from Lab growth, including the proposed project, are addressed under LRDP Impacts BIO-1 and BIO-3 in the 2006 LRDP EIR and mitigation measures are proposed that would reduce the impacts to a less than significant level. Although this impact is adequately addressed by the 2006 LRDP EIR analysis, the project-specific impact will be further discussed in the CRT project EIR.

b. **Potentially Significant Impact.** There are no existing drainages or other sensitive communities on the CRT project site that could be affected by the project. Although, this impact is adequately addressed by the 2006 LRDP EIR analysis, the project-specific impact will be further discussed in the CRT project EIR to confirm this conclusion.

c. **No Impact.** LRDP Impact BIO-2 in the 2006 LRDP EIR discusses the potential for the 2006 LRDP development to affect wetlands. There are no jurisdictional wetlands as defined by Section 404 of the Clean Water Act on the project site. Therefore no impact would occur and no additional analysis of this impact is required.

d. **No Impact.** Impacts BIO-3 and BIO-7 in the 2006 LRDP EIR discuss the project-level impacts and cumulative effects of development on biological resources. The project site is not known to serve as a migratory corridor or nursery site to any native resident or migratory species. There would be no impact and no further analysis is required.

e. **Potentially Significant Impact.** The impact related to removal of native and nonnative vegetation was evaluated under LRDP Impact BIO-1 in the 2006 LRDP EIR and determined to be less than significant. Although this impact is adequately addressed by the 2006 LRDP EIR analysis, the project-specific impact will be further discussed in the CRT project EIR.

f. **No Impact.** No Habitat Conservation Plans or Natural Community Conservations Plans have been adopted that encompass the project area. Therefore, no impact would occur and no additional analysis of this impact is required.

6.5 Cultural Resources

6.5.1 Background

Section IV.D of the 2006 LRDP EIR addresses the effects on cultural resources of development under the 2006 LRDP through 2025 and is incorporated by reference in this Initial Study for this project pursuant to *CEQA Guidelines* Section 15150. The following discussion summarizes information presented in the 'Setting' subsection of Section IV.D of the 2006 LRDP EIR.

LBNL site history presented in the 2006 LRDP EIR was based on information from technical studies prepared for the project area, including archival research at the California Historical Resources Information System's Northwest Information Center completed on December 1, 2003; a cultural resources evaluation and survey completed by Archaeological Research Services in 1986; an archaeological survey report (Kielusiak, 2000); and the first of a series of reports being prepared by D.W. Harvey (2003) of the Pacific Northwest National Laboratory as part of an inventory and evaluation of potential historically significant buildings and structures at LBNL.

Previous Site-Wide Studies

As part of the environmental analysis for the 1987 LRDP EIR, as amended, all undeveloped land and then-proposed building locations were examined for potential historical and archaeological resources. All reasonably accessible parts of the LBNL area were examined. Special attention was given to areas of relatively flat land or rock outcrops. The steep hillsides were not examined intensively, although transects were made through accessible areas. Based on the findings of the historic and archaeological resources survey, no indications of historic or prehistoric archaeological resources were encountered in any location at the project site. As a result of this survey, LBNL was not determined to be eligible for listing on the National Register of Historic Places.

Current Studies of Historical Resources

To evaluate the potential for historically significant buildings or structures at the Lab, LBNL has retained the Pacific Northwest National Laboratory team of licensed cultural resource professionals to conduct field surveys and historic research. In coordination with LBNL, DOE, and the State Office of Historic Preservation, the team is systematically investigating and reporting on all buildings and structures at the Lab. The team will complete a series of reports to identify, survey, and evaluate approximately 245 buildings and structures at the LBNL site for potential eligibility for listing in the National Register. These studies have been undertaken pursuant to Section 110 of the National Historic Preservation Act, which requires that federal agencies such as DOE survey the lands under their control and evaluate all historic properties (including buildings and the equipment contained therein) for eligibility for listing in the National Register. These reports will then be submitted to the State Historic Preservation Officer for concurrence.

Current Studies of Archaeological Resources

Field surveys and archival research at the California Historical Resources Information System's Northwest Information Center have been undertaken to determine whether any archaeological resources have been discovered at LBNL. (For details about the Northwest Information Center, see discussion of the State Office of Historic Preservation under "Federal and State Regulatory Environment" below.) The Northwest Information Center has indicated there is a "low potential for Native American sites in the

project area" and thus "a low possibility of identifying Native American or historic-period archaeological deposits in the project area." Additionally, field studies conducted at various times at LBNL have not encountered any archaeological resources. Native American archaeological sites in this portion of Alameda County tend to be situated on terraces along ridgetops, midslope terraces, alluvial flats, near ecotones, and near sources of water, including springs. LBNL is situated on a steep slope adjacent to Strawberry Creek. Therefore, there is a low-to-moderate potential for Native American sites to be present on the project site.

6.5.2 2006 LRDP EIR Analysis

Impacts on cultural resources from Lab development under the 2006 LRDP through 2025 are evaluated in Section IV.D of the 2006 LRDP EIR and incorporated herein by reference. The proposed project is within the scope of analysis of the 2006 LRDP EIR. Relevant mitigation measures in the 2006 LRDP EIR have been incorporated into the proposed project planning and design and will be implemented during project operations consistent with LRDP or project-specific mitigation monitoring requirements.

6.5.3 Environmental Checklist and Discussion

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
CULTURAL RESOURCES - Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries	☐	☐	☒	☐

DISCUSSION:

a. **Less than Significant Impact.** As described under LRDP Impact CUL-1, implementation of the 2006 LRDP could cause a substantial adverse change in the significance of historical resources, as defined in *CEQA Guidelines* Section 15064.5, including historical resources that have not yet been identified. The 2006 LRDP EIR concluded that, based on the *CEQA Guidelines*, removal of buildings determined to be eligible for listing on the National Register would result in a substantial adverse change that cannot be

fully mitigated. Accordingly, the 2006 LRDP EIR concluded this impact would remain significant and unavoidable. The 2006 LRDP EIR also concluded that the demolition of buildings and structures at LBNL that have been found to be ineligible for listing in the National Register individually or as a district, as allowed by the 2006 LRDP, would be less than significant (LDRP Impact CUL-2).
As described above, the project site does not include any existing buildings and the existing Building 50 stairway, which would be altered to accommodate pedestrians to the CRT Facility, is not currently listed on any National or State Register. Furthermore, the stairway structure was built within the last 50 years, and is not likely to be considered "exceptionally important," so is not likely eligible for the National Register of Historic Places or the State Office of Historic Preservation. There would be no impact to historic structures from project implementation and no project specific mitigation measures are required.

The proposed project is within the 2006 LRDP APE; however, since the existing staircase would not be demolished or substantially altered, the project would not contribute to the significant and unavoidable impact identified in the 2006 LRDP EIR with respect to loss of historic resources. Impacts to historical structures will not be analyzed further in the CRT project EIR.

Comments on the 2006 LRDP Draft EIR raised the possibility that Strawberry Canyon could be considered a cultural landscape and that activities under the 2006 LRDP could affect the integrity of such an area. Some individuals have suggested that Strawberry Canyon should not be altered because it is a potential cultural landscape. The Canyon area has been the site of numerous and changing research, recreational and land management activities of the University of California, as well as residential and other development activities on private properties. The proposed project is consistent with this existing and ongoing pattern of development in the area.

As discussed in the Final LRDP EIR, a cultural landscape is defined by the National Park Service as "a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. There are four general types of cultural landscapes, not mutually exclusive: historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes." Although not necessarily required for CEQA evaluation purposes, cultural landscape information in the standard National Park Service format would typically include a history of the use and development of an important landscape, including a cultural landscape chronology, identification of its potential boundaries, and a description of the character defining features of the landscape. Strawberry Canyon has not been the subject of such a study to date and has not been designated a cultural landscape by the City of Berkeley Landmarks Preservation Commission the State Historic Preservation Officer, and it is not clear what historic event, activity or person would be the basis for significance of the areas as a cultural landscape. Furthermore, the City does not have an ordinance to designate cultural landscapes, the landscape has not been recorded or nominated to the National Register of Historic Places (NRHP) or California Register of Historic Resources (CRHR) as a cultural landscape, and it is not clear that it has characteristics that would warrant such nomination or would make it eligible for listing. If the property were nominated to the CRHR or NRHP, the State Historical Resources Commission (and NPS for federal nominations) would be the agency to determine whether the property meets the criteria. If Strawberry Canyon is designated as a cultural landscape in future, LBNL will take such designation into account in future planning, as required by CEQA.

Cumulative Impacts

As concluded in the 2006 LRDP EIR, implementation of the 2006 LRDP would not combine with other cumulative projects to result in an adverse change to the significance of historical resources that share historic significance with resources that could be lost at LBNL (LRDP Impact CUL-5).

The Southeast Campus Integrated Projects (SCIP) are included in the 2006 LRDP EIR for purposes of cumulative analyses. The UC Berkeley Southeast Campus Integrated Projects (SCIP) would result in significant and unavoidable impacts with regard to historical resources due to changes to Memorial Stadium, demolition of several structures, and alterations to buildings and landscape along Piedmont Avenue. For the most part, the buildings and facilities that would be adversely affected by the SCIP do not share historical associations with other facilities at LBNL. However, there is one potential exception: Calvin Laboratory, a UC Berkeley building occupied by LBNL staff and researchers that would be demolished under the SCIP. Although constructed in 1964 and therefore less than 50 years old—the normal minimum age for consideration for designation as a historical resource—Calvin Laboratory was identified in the SCIP Draft EIR as a historical resource because of its association with Melvin Calvin, a Nobel laureate who made significant contributions to science, especially in his research on photosynthesis.

The 2006 LRDP EIR concludes that the 2006 LRDP would not adversely affect buildings with particular historical association to Melvin Calvin, whose pioneering work was undertaken in facilities on the UC Berkeley campus. Moreover, it would be the UC Berkeley SCIP that would demolish Calvin Laboratory. Therefore, the LBNL 2006 LRDP would not result in a considerable contribution to any cumulative adverse impact on historical resources related to association with Melvin Calvin.

b., d. **Less than Significant Impact.** There is a potential that undiscovered archaeological resources could be found during construction. The adopted 2006 LRDP Mitigation Measure CUL-3, which requires work stoppage and archaeological assessment in the event of a discovery during construction, is incorporated in the project to minimize impacts to undiscovered archaeological resources (LRDP Impact CUL-3). The adopted 2006 LRDP EIR Mitigation Measure CULT-4, also included in the proposed project, provides for work stoppage and appropriate treatment and Native American involvement in the event of the discovery of human remains. With the inclusion of these measures in the proposed project, the potential for the project to result in impacts to any historical resources, archaeological resources, or human remains that might be discovered during construction would be less than significant. Further evaluation of this impact is not required.

Cumulative Impacts

Concerning potential cumulative impacts on cultural resources, the areas surrounding LBNL are either built out or would be retained as open space under the 2006 LRDP, thus limiting development opportunities in undisturbed areas. Therefore, the potential for the proposed LRDP to result in the discovery of other cultural resources is low. As there are no known or reasonably foreseeable projects in the immediate areas adjacent to LBNL that could combine with LRDP projects, cumulative impacts on cultural resources would not be considered significant.

Furthermore, as specific projects are proposed in the vicinity and LBNL and in the region, lead agencies would have to determine, on a case-by-case basis, whether the potential for historical or archaeological resources to be disturbed or adversely affected exists at a particular site. Therefore, site-specific research

on the presence of historical and/or archaeological resources is frequently one of the first considerations in project planning and CEQA review. Accordingly, while it cannot be stated with certainty the nature of the cumulative impact, the fact that the 2006 LRDP impacts would be relatively minimal, combined with the site- and project-specific considerations that must be given to subsequent projects elsewhere in the vicinity and the region, implementation of the 2006 LRDP is not expected to result in a considerable contribution to any potential cumulatively significant effects on historical and archaeological resources.

c. **No Impact.** The 2006 LRDP Initial Study found that the 2006 LRDP would have no significant impact on a unique paleontological resource or site or a unique geologic feature at LBNL. During the course of development at LBNL, extensive excavation for buildings and infrastructure has not revealed the presence of unique paleontological or geologic resources, and thus implementation of the 2006 LRDP would not affect such resources. No impact would occur with implementation of the proposed project and further analysis of this impact is not required.

6.6 Geology and Soils

6.6.1 Background

Section IV.E of the 2006 LRDP Final EIR addresses the effects related to geology and soils from Lab growth under the 2006 LRDP through 2025 and is incorporated by reference in this Initial Study for this project, pursuant to *CEQA Guidelines* Section 15150. The following discussion summarizes information presented in the 'Setting' subsection of Section IV.E of the 2006 LRDP EIR.

LBNL

The LBNL site is located on the western slopes of the Berkeley-Oakland hills within the central region of the Coast Range Geomorphic province. The Miocene Orinda Formation, composed of poorly indurated non-marine mudstone and sandstone, underlies most of the LBNL site. The western and southern portions are underlain by older marine mudstone and sandstone deposits. Some of the higher elevation portions of the site and a portion of the eastern part of the site are underlain by Moraga Formation rocks, and a small portion of the eastern extent of the site is underlain by shallow marine sandstones of the Claremont Formation. The entire site is mapped by the California Department of Conservation, Geologic Survey (CGS) as MRZ-1, an area where no significant mineral or aggregate deposits are present. The majority of the site soils are Xerorthents-Millsholm complex, 30 to 40 percent slope. These soils are well-drained and susceptible to erosion. Other soil types on the LBNL site include Altamont Clay, Mayhem loam, and Mayhem-Los Gatos complex, all soil types highly susceptible to erosion.

The Hayward Fault and associated Earthquake Fault Zone traverses the western edge of the LBNL site near the Blackberry entrance. The San Andreas Fault Zone is approximately 19 miles southwest of the Lab. According to the USGS Working Group on California Earthquake Probabilities estimates, there is a 27 percent chance of an earthquake of 6.7 magnitude on the Hayward-Rodgers Creek Fault system by 2032 and a 21 percent chance of an earthquake of 6.7 magnitude on the San Andreas Fault by 2032. The Lab site is expected to experience strong ground shaking from a seismic event on any of the Bay Area major faults. CGS has designated much of the LBNL site as a Seismic Hazard Zone for earthquake induced landslides. The CGS has not designated any portion of the Lab site as a Seismic Hazard Zone for liquefaction.

Project Site

The CRT project site is located in the western portion of the Lab site near the Blackberry entrance, within the Hayward Fault Zone. The site is steep sloping with an average inclination of 2:1 (horizontal to vertical).

6.6.2 2006 LRDP Final EIR Analysis

Impacts related to geology and soils from Lab growth under the 2006 LRDP through 2025 are evaluated in Section IV.E of the 2006 LRDP EIR and incorporated herein by reference. The LRDP EIR analysis concluded that all impacts related to geology and soils would either be less than significant or would be reduced to a less than significant level with the proposed mitigation.

The proposed project is within the scope of analysis of the 2006 LRDP EIR. Relevant mitigation measures in the 2006 LRDP EIR have been incorporated into the proposed project planning and design and will be

implemented during project operations consistent with LRDP or project-specific mitigation monitoring requirements.

6.6.3 Environmental Checklist and Discussion

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
GEOLOGY AND SOILS - Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☒	☐	☐	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☒	☐	☐	☐
ii) Strong seismic ground shaking?	☒	☐	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☒	☐	☐	☐
iv) Landslides?	☒	☐	☐	☐
b) Result in substantial soil erosion or the loss of topsoil?	☒	☐	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☒	☐	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☒	☐	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

DISCUSSION:

a.i.-iv. **Potentially Significant Impact.** The LBNL site is located in the San Francisco Bay Area, a seismically active region, and as such is exposed to some risk of impacts related to seismic activity. The San Andreas Fault is located about 19 miles west of the Lab site. The Hayward fault runs through the western part of the LBNL campus. The United States Geologic Survey (USGS) has determined that there is a 62 percent probability that a 6.7 moment magnitude earthquake will occur in the San Francisco Bay Area before the year 2032 on one of the active faults in the Bay Area. The 2006 LRDP EIR evaluated the potential for seismic-related impacts to life and property from the development proposed under the 2006 LRDP, including the proposed project (LRDP Impact GEO-2). That evaluation revealed that with the incorporation of Mitigation Measure GEO-2 (which calls for implementation of the recommendations of a site specific geotechnical investigation for each project site), the impact related to seismic-related ground failure and damage would be reduced to a less than significant level.

The project site is within the designated Alquist-Priolo Earthquake Fault Zone for the northern segment of the Hayward Fault. In compliance with CGS Publication 49, the Lab has conducted a detailed Fault Rupture Hazard Investigation of the project site. The results of this investigation and the site-specific geotechnical investigation to be performed in compliance with LRDP Mitigation Measure GEO-2 will be presented in the CRT project EIR and used to determine whether the proposed project would result in a significant impact related to seismic hazards.

b. **Potentially Significant Impact.** LRDP Impact GEO-3 in the 2006 LRDP EIR discusses erosion associated with construction under the 2006 LRDP. Since the CRT project site is located on a hillside, erosion could occur during construction. LRDP Mitigation Measures GEO-3a and 3b include construction management practices to minimize the extent of such effects. LRDP mitigation measures would be implemented in conjunction with the proposed project. The potentially significant disturbance of hillside areas would be reduced to a less than significant impact with implementation of LRDP mitigation measures. Although this impact is adequately addressed by the 2006 LRDP EIR analysis, the project-specific impact will be further discussed in the CRT project EIR.

c.-d. **Potentially Significant Impact.** Impact GEO-3 in the 2006 LRDP EIR also includes a discussion of potential impacts related to unstable soils resulting from implementation of the 2006 LRDP. As discussed, implementation of the LRDP could lead to development on areas of unstable or unsuitable soils. Compliance with building standards and codes for structural integrity and personnel safety is included in LRDP Mitigation Measure GEO-3b, which would be implemented as part of the proposed project. With implementation of the recommendations of a site-specific geotechnical investigation, impacts related to unstable or expansive geologic units would be reduced to a less than significant level. Although this impact is adequately addressed by the 2006 LRDP EIR analysis, the project-specific impact will be further discussed in the CRT project EIR.

e. **No Impact.** The Initial Study prepared as part of the 2006 LRDP EIR scoping process concluded that development on the LBNL site would have no impact to septic systems. The project site is served by sanitary sewer systems and would not require the use of septic tanks or alternative wastewater disposal systems; thus, this impact does not need to be further analyzed in the CRT project EIR.

6.7 Hazards and Hazardous Materials

6.7.1 Background

Section IV.F of the 2006 LRDP EIR addresses impacts related to hazards and hazardous materials from the growth of the Lab under the 2006 LRDP through 2025 and is incorporated by reference in this Initial Study for this project pursuant to *CEQA Guidelines* Section 15150. The following discussion summarizes information presented in the 'Setting' subsection of Section IV.F of the 2006 LRDP EIR.

Definition of Hazardous Materials

The term **hazardous material** is defined in different ways for different regulatory programs. The 2006 LRDP EIR uses the definition given in California Health and Safety Code Section 25501(o), which defines hazardous material as:

> …any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment.

Hazardous materials include, but are not limited to, hazardous substances, hazardous wastes, and any material for which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment. They may include hazardous chemicals, biohazardous materials, and radioactive materials.

Regulatory Context

LBNL is subject to government health and safety regulations applicable to the use and disposal of all forms of hazardous materials. These include state and federal worker safety requirements; state and federal laws governing handling, use, storage, transportation and disposal of hazardous materials; federal hazardous waste regulations; federal and state regulations governing use and transfer of radioactive materials; federal laws regulating the possession, access, use, and transfer of biohazardous materials; and the state underground storage tank program.

The primary federal laws include the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Responsibility, Compensation, and Liability Act of 1980 (CERCLA). RCRA includes procedures and requirements for reporting releases of hazardous materials, and for cleanup of such releases. RCRA also includes procedures and requirements for handling hazardous wastes or soil or groundwater contaminated with hazardous wastes. CERCLA delineates the liability for contamination between current property owners and others. The Hazardous Materials Transportation Act is administered by the Department of Transportation (DOT) via its issuance of inspections, training, and transportation requirements and information; the Federal Government delegates enforcement authority to the states.

The primary state laws that address soil and water pollution, hazardous materials storage, handling, transport and disposal include the State Water Code, Underground Storage Tank Code, Cortese Act (listing of hazardous waste and substances sites), and Proposition 65 (safe drinking water and toxics enforcement).

LBNL Hazardous Materials Plans and Policies

LBNL has developed an Integrated Safety Management (ISM) System that establishes environment, safety and health policies and procedures to ensure all work is performed safely and in a manner that strives for the highest protection for the employees, guests, visitors, the public and the environment. In addition, the Lab has developed an Environmental Management System to implement sound environmental stewardship practices that protect the air, water, land, and other resources that could potentially be affected by facility operations. The LBNL Environment, Health, and Safety (EH&S) Division has the primary responsibility of developing strategies for compliance with local, state, and federal laws and regulations. EH&S has the authority to require abatement of any condition or operation that could endanger people or facilities on campus or result in violations of pertinent federal or state laws or campus policies concerning health and safety. EH&S develops specific policies and programs in the following areas: industrial hygiene, chemical safety, physical safety, radiation safety, biohazard safety, hazardous waste management, and environmental protection.

Hazardous Materials Storage, Handling and Disposal

LBNL stores chemicals and other hazardous materials in aboveground tanks and storage drums. Hazardous, radioactive, biohazardous, and mixed wastes are stored in designated areas in research and support areas throughout the Lab. From these locations, they are taken to the Hazardous Waste Handling Facility for temporary storage. From this site, the wastes are hauled off for treatment and disposal.

Other Hazards

Other potential hazards at LBNL include the presence of asbestos, lead based paints, PCBs, and radioactive materials in Lab structures and soil and groundwater contamination in some areas of the Lab due to historical releases of hazardous and radioactive materials. Prior to demolition of older structures, the Lab conducts surveys to identify locations where hazardous substances are present and to establish procedures to safely remove the substances. The Lab is also performing remediation and monitoring of contamination in groundwater using about 150 groundwater monitoring wells located throughout the Lab and one additional well located off-site.

Similar to other developed hillside areas, the Lab's developed areas are interspersed with grassland areas and groves of trees. The Lab implements a vegetation management program to minimize the risk of wildland fires. In addition, Alameda County Fire Station 19 is located on the Lab site.

Project Site

[The CRT project will not involve the use of any hazardous materials other than the potential for small amounts of certain chemicals that would be used in the cooling towers to control scaling. The CRT project site is located in a stand of eucalyptus and pine trees with a few immature redwood and oak trees, and a grassland understory. Areas adjacent to the site are also similar in terms of vegetation community and have a moderate to high risk of wildland fires.

6.7.2 2006 LRDP EIR Analysis

Impacts related to hazards and hazardous materials from Lab growth under the 2006 LRDP through 2025 are evaluated in Section IV.F of the 2006 LRDP EIR and are incorporated herein by reference. The LRDP

EIR analysis concluded that all hazards and hazardous materials related impacts would either be less than significant or would be rendered less than significant by the proposed mitigation measures.

The proposed project is within the scope of analysis of the 2006 LRDP EIR. Relevant mitigation measures in the 2006 LRDP EIR t have been incorporated into the proposed project planning and design and will be implemented during project operations consistent with LRDP or project-specific mitigation monitoring requirements.

6.7.3 Environmental Checklist and Discussion

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
HAZARDS AND HAZARDOUS MATERIALS - Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☒	☐	☐	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wild land fires, including where wild lands are adjacent to urbanized areas or where residences are intermixed with wild lands?	☒	☐	☐	☐

DISCUSSION:

a. **Less than Significant Impact.** Impact HAZ-3 in the 2006 LRDP EIR addresses impacts associated with the transport, use or disposal of hazardous materials at the LBNL site. The Lab undertakes hazardous materials detection, investigation, and remediation activities in accordance with regulatory requirements. In the judgment of regulatory agencies, past releases of hazardous materials at the Lab have not created significant hazards to the public or environment. LRDP-related development would not be expected to create any significant new hazardous materials issues at LBNL. Implementation of the 2006 LRDP could result in the development of additional research laboratories and other research facilities that would use, store, and require the transportation of hazardous materials and disposal of hazardous waste. Solvents, adhesives, cements, paints, cleaning agents, degreasers, and fuels in construction and other vehicles are among the types of existing hazardous materials used at the Lab that could increase if the CRT project is implemented. The presence and use of hazardous materials, and the presence of hazardous waste, provides potential exposure risks to workers, the public, and the environment. LRDP Mitigation Measures HAZ-3a, HAZ-3b, HAZ-3c, HAZ-3d, and HAZ-3e include measures undertaken by the Lab, including compliance with applicable laws and regulations governing hazardous materials and hazardous waste management activities, and the use of the Lab's Hazardous Waste Handling Facility. These measures would be included in the proposed project, as appropriate. Impacts associated with handling, storage, and potential release of hazardous materials have been adequately addressed in the 2006 LRDP EIR. Potential project-specific impacts related to the CRT project are therefore considered less than significant. This issue will not be analyzed further in the CRT project EIR.

Cumulative Impacts

The 2006 LRDP EIR concludes that implementation of the 2006 LRDP would contribute to cumulative increases in exposure to hazards and hazardous materials. In the vicinity of LBNL, UC Berkeley would increase the amount of hazardous materials handled and hazardous waste requiring disposal through implementation of its own LRDP update. Other changes that could further increase the amount of hazardous materials and waste handled in the area include expansion of biotechnology industry firms in the East Bay and expansion of or changes in the operations of refineries, chemical companies, and other hazardous materials and waste facilities in western Contra Costa County.

Implementation of the proposed CRT Facility project would not increase storage of hazardous and radioactive materials at LBNL, nor would it increase the generation of hazardous, low-level radioactive,

mixed, and medical waste. Compliance by LBNL with applicable federal, state, and local regulations, LBNL policies, and the mitigation measures in the 2006 LRDP EIR would reduce potential impacts to less than significant levels. Similar compliance with regulations governing hazardous materials and hazardous wastes by UC Berkeley and other institutions would reduce potential cumulative impacts in the vicinity of the CRT Facility site to less-than significant levels. Therefore, implementation of the CRT Facility project would not result in a considerable contribution to any cumulative increases in the use of or exposure to hazards or hazardous materials.

b. **Less than Significant Impact.** As described under Impact HAZ-3 of the 2006 LRDP EIR, implementation of the LRDP would increase the use, transport, and disposal of hazardous materials. Upset and accident conditions could expose workers, the public, and the environment to risks from releases of hazardous materials and hazardous waste. LRDP Mitigation Measures HAZ-3a, HAZ-3b, HAZ-3c, HAZ-3d, HAZ-3e and HAZ-3f include provisions for and maintaining necessary emergency preparedness and response capabilities, in addition to preventing release of hazardous materials. These would be implemented as part of the project. Impacts associated with handling, storage, and potential release of hazardous materials have been adequately addressed in the 2006 LRDP EIR. This issue will not be analyzed further in the CRT project EIR.

Cumulative Impacts

See discussion under item a above.

c. **Less Than Significant Impact.** LRDP Impact HAZ-4 discusses handling of hazardous materials and wastes within one-quarter mile of an existing school. The project site is located approximately 0.3 mile north of the UC Berkeley campus, however, it is not located within one-quarter mile of an existing or proposed school per CEQA Guideline 15186. The Lawrence Hall of Science, which is not a school but an educational institution (science museum) serving many school-aged visitors, is approximately 350 feet from the Lab's northern property line, and over one-quarter mile away from the CRT project site. In addition, the proposed project is not anticipated to result in major new sources of on-site hazardous materials or handling. Potential project-specific impacts related to the CRT project are therefore considered less than significant. This issue will not be analyzed further in the CRT project EIR.

d. **Less than Significant Impact.** Impact HAZ-3 in the 2006 LRDP EIR analyzes sites included on a list of hazardous materials sites, resulting in hazards to the public or environment. Five LBNL locations are listed on the current CAL/EPA Hazardous Waste and Substances Sites List, also known as the "Cortese list." These sites may be found at: http://www.lbl.gov/Community/env-rev-docs.html. The proposed CRT project site is not included on this list. All are listed due to past leaks from underground fuel storage tanks. Corrective action was implemented by the Laboratory, and the local regulatory agency responsible for oversight (City of Berkeley, Toxics Management Division) has approved No Further Action status for four of the five sites. Interim corrective measures are in place at the remaining site. According to the 2006 LRDP EIR, the sites do not create a significant hazard to the public or the environment. Contamination from the sites has not gone beyond Lab boundaries, and has not created any known adverse impacts to on- or off-site personnel, wildlife, or vegetation. (The presence of a site on the hazardous materials sites list does not necessarily indicate a significant hazard. Once a location has been listed, it remains on the list even after all contamination has been removed. This policy enables parties to discover whether tanks or contamination exist or formerly existed on properties where ownership may be transferred.) Potential project-specific impacts related to the CRT project are therefore considered less than significant. This issue will not be analyzed further in the CRT project EIR.

Cumulative Impacts

See discussion under item a above.

e. **No Impact**. The Initial Study prepared as part of the 2006 LRDP EIR scoping process concluded that development on the LBNL site would have no impact related to safety hazards for people within 2 miles of a public airport or a public use airport. The LBNL site is neither within an airport land use plan nor within the vicinity of an airport. No further analysis of this impact is required.

f. **No Impact**. The Initial Study prepared as part of the 2006 LRDP EIR scoping process concluded that development on the LBNL site would have no impact related to safety hazards for people in the vicinity of a private airstrip. The LBNL site is not within the vicinity of a private airstrip. No further analysis of this impact is required.

g. **Potentially Significant Impact.** As discussed in LRDP Impact HAZ -5, development under the 2006 LRDP, including the proposed project, would increase the number of people and the amount of property that could be exposed to regional, compounded, or terrorist-related catastrophic events. Regionally catastrophic events could include earthquakes or fires of sufficient magnitude to impair regional emergency support and service systems such that LBNL could not expect to receive aid from external sources. The proposed project would contribute to the increase in people and amount of property that could be exposed to catastrophic events. The 2006 LRDP EIR identifies preventative measures that would apply to the proposed project which would ensure that the impact would be less than significant. This project-specific impact will be discussed in the CRT project EIR

Impact HAZ-3 in the 2006 LRDP EIR includes a discussion of adopted emergency response plans or emergency evacuation plans. The proposed building would be situated adjacent to Cyclotron Road, and would include construction access roads. As described under Mitigation Measure HAZ-3f, implementation of the 2006 LRDP would include measures for updating emergency preparedness and response programs, which would be incorporated in the proposed project and reduce the impact to less than significant levels. Nevertheless, the CRT project EIR will discuss the potential for the proposed project to interfere with any element of LBNL's site emergency response and evacuation plans.

h. **Potentially Significant Impact.** LRDP Impact HAZ-6 in the 2006 LRDP EIR addresses impacts associated with exposure to people or structures to wildland fire hazards. According to the 2006 LRDP EIR, although development would meet safety standards and fire codes at the time of individual facility construction, wildland fire hazards would continue to threaten the LBNL site. However, the 2006 LRDP EIR concluded that continued implementation of LBNL's vegetation management program would limit damage to assets from these fires and would reduce potential wildland fire hazards to a less-than-significant level. Although this impact is adequately addressed in the 2006 LRDP EIR and was found to be less than significant, the project-specific impact will be discussed in the CRT project EIR.

6.8 Hydrology and Water Quality

6.8.1 Background

Section IV.G of the 2006 LRDP EIR addresses the hydrology and water quality effects of Lab growth under the 2006 LRDP through 2025 and is incorporated by reference in this Initial Study for this project pursuant to *CEQA Guidelines* Section 15150. The following discussion summarizes information presented in the 'Setting' subsection of Section IV.G of the 2006 LRDP EIR.

LBNL

Surface Water Hydrology

The Lab is located within the Blackberry and Strawberry Creek watersheds in the East Bay hills, with the majority of the Lab site in the Strawberry Creek Watershed. This watershed is about 2,066 acres, of which about 202 acres or 10 percent are within the Lab site. The majority of the Lab site drains to the South Fork of Strawberry Creek, while the northwestern portion of the Lab site drains to the North Fork . A number of smaller drainages discharge into the South Fork, including Ravine Creek, Chicken Creek, No Name Creek, and Botanical Garden Creek. Runoff from the Lab site that drains into the South Fork of Strawberry Creek is routed into a mid-canyon retention basin from where it is released downstream at flow rates consistent with the design parameters of the storm drainage systems of UC Berkeley and the City of Berkeley. Runoff from the Lab site that drains into the North Fork exits the Lab site at the bottom of Blackberry Canyon from where it flows through a series of check dams and settlement basins before entering the City's storm water system.

Groundwater Resources

Groundwater at LBNL occurs at depths ranging from zero to approximately 100 feet below ground surface. Groundwater flow patterns generally reflect the site topography, with groundwater flowing to the south for the vast majority of the site. Groundwater at the site is not used for potable or irrigation uses.

Flooding

The Lab site is not located within a 100-year flood plain as determined by Federal Emergency Management Agency flood hazard mapping.

Surface Water and Groundwater Quality

LBNL has had a storm water management program in place since 1992. This program is designed to control pollution of surface waters. Groundwater in some portions of the Lab site has been affected by accidental releases of hazardous and radioactive materials. LBNL is implementing a remediation and monitoring program to address the groundwater contamination (see discussion in Section 6.7.3, Hazards).

Project Site

The proposed CRT project site is located in the North Fork watershed of Strawberry Creek. Cafeteria Creek, an intermittent tributary of the North Fork, is located to the east of the project site. The project site

is open land with no areas of pavement or development, except for a wooden staircase that provides access between Cyclotron Road near Blackberry Gate and the building 50 and building 70 complexes.

6.8.2 2006 LRDP EIR Standards of Significance

Impacts on hydrology and water quality from Lab growth under the 2006 LRDP are evaluated in Section IV.G of the 2006 LRDP EIR and are incorporated herein by reference. The LRDP EIR analysis concludes that all hydrology and water quality impacts of Lab growth under the 2006 LRDP would be less than significant. No mitigation measures related to hydrology and water quality impacts are identified in the 2006 LRDP EIR.

The proposed project is within the scope of analysis of the 2006 LRDP EIR.

6.8.3 Environmental Checklist and Discussion

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
HYDROLOGY AND WATER QUALITY- Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☒	☐	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?	☒	☐	☐	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?	☒	☐	☐	☐

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☒	☐	☐	☐
f) Otherwise substantially degrade water quality?	☒	☐	☐	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

DISCUSSION:

a. **Potentially Significant Impact.** LRDP Impacts HYDRO-1 and HYDRO-2 in the 2006 LRDP EIR discuss impacts related to violation of water quality standards or waste discharge requirements associated with implementation of the 2006 LRDP. Development under the project would result in an increase in impermeable surface area, which could produce additional volume and pollutant loading of urban runoff. The Regional Water Quality Control Board has expressed water quality concerns for Strawberry Creek and its receiving waters (the San Francisco Bay) based on releases of sediment, bacteria, nutrients, metals and hydrocarbons. Additionally, increased water usage that could result from implementation of the proposed CRT project could cause increases in wastewater discharges that could exceed waste discharge requirements for water quality or quantity. The CRT project EIR will evaluate impacts to water quality from runoff, characterize current waste discharge volumes of the LBNL and wastewater treatment capacity at the East Bay Municipal Utility District's (EBMUD's) wastewater treatment plant, and evaluate whether the implementation of the CRT project would result in a violation of applicable standards or waste discharge requirements. Although the 2006 LRDP EIR concluded that impacts associated with water quality and drainage from development under the 2006 LRDP would be less than significant, a project-specific discussion will be included in the CRT project EIR.

b. **Less than Significant Impact.** Water used at LBNL is supplied from the East Bay Municipal Utility District's Shasta Reservoir and Berkeley View Reservoir systems and groundwater at the site is not used by the Lab. The project would not require any groundwater withdrawal. Recharge of the groundwater table would not be affected by implementation of the proposed project because the project would

infiltrate storm water to the maximum extent practicable. The 2006 LRDP EIR concludes that LBNL's steep slopes, shallow bedrock, and thin soils presently inhibit significant groundwater recharge of the East Bay Plain. Furthermore, the groundwater in the project area is not used for public water supply. Therefore potential groundwater recharge and supply impacts associated with the project are not considered significant and no further analysis of these impacts is required.

c-f. **Potentially Significant.** Impacts related to storm water quality associated with implementation of the 2006 LRDP are discussed in Impacts HYDRO-1 and HYDRO-2 in the 2006 LRDP EIR. Impacts related to erosion and subsequent sedimentation of storm water runoff are analyzed under Impact HYDRO-3 in the 2006 LRDP EIR. Because the Lab is situated in an area of hills and canyons with multiple drainages, drainage control and maintenance has historically been an essential component of the Lab's existence. The proposed project is not located on a major drainage. However, development of the proposed project would increase impervious surfaces, which could result in increased surface water runoff and increased erosion and levels of urban contaminants. Although the 2006 LRDP EIR concluded that impacts associated with erosion, flooding, and water quality from increased runoff associated with development under the 2006 LRDP would be less than significant, a project-specific discussion will be included in the CRT project EIR. The CRT project EIR will also evaluate if the existing/planned drainage system could accommodate increased runoff generated as a result of development under the proposed project.

g-i. **No Impact.** The project site is not located within the Federal Emergency Management Agency's (FEMA) Flood Zone A (100-year flood zone). The surrounding area is mostly developed and is located approximately 750 feet above seal level, and therefore, existing structures are outside the flood plain with or without the project. The project would not involve the construction of residential structures. Therefore, there would be no impact and no further discussion is required.

j. **No Impact.** Active faults within the San Francisco Bay Area have largely horizontal movement and are not expected to generate significant water waves in the San Francisco Bay. Given the elevation and distance of the project site from the bay's edge, the potential for flooding from a seiche would be minimal. The LBNL location on the eastern hills of the San Francisco Bay Area effectively shields the site from tsunamis. Moreover, given the topography of the project site, there would be minimal impacts from mudflows. Therefore, implementation of the project would result in no impact related to the risk of inundation from seiche, tsunami, or mudflow and no further discussion is required.

6.9 Land Use and Planning

6.9.1 Background

Section IV.H of the 2007 LRDP EIR addresses the effects of campus growth under the 2006 LRDP on land use and planning and is incorporated by reference in this Initial Study for this project pursuant to *CEQA Guidelines* Section 15150. The following summarizes information presented in the 'Setting' subsection of Section IV.H of the 2007 LRDP EIR.

LBNL

The LBNL site covers approximately 200 acres in the eastern hills of Berkeley and Oakland. The site is largely buffered by undeveloped land owned by the University of California, although the northwest corner of the Lab generally abuts residential neighborhoods in the City of Berkeley.

Access to the Lab's hill site is limited to three controlled-access vehicular gates on Cyclotron Road (the main Blackberry Canyon Gate) and Centennial Drive (the Strawberry Canyon and Grizzly Peak gates), all of which are staffed by an on-site security firm contracted by LBNL. Visitors primarily use the Blackberry Canyon Gate. The Grizzly Peak Gate is an exit-only gate after the morning commute hours.

LBNL is a federal facility operated by the University of California and conducting work within the University's mission on land that is owned or controlled by The Regents of the University of California. As such, LBNL is generally exempted by the federal and state constitutions from compliance with local land use regulations, including general plans and zoning. However, LBNL seeks to cooperate with local jurisdictions to reduce any physical consequences of potential land use conflicts to the extent feasible. The western part of the LBNL site is within the Berkeley city limits, and the eastern part is within the Oakland city limits.

Project Site

The CRT project site is currently undeveloped, and is adjacent to existing buildings and dense hillside vegetation. The 2006 LRDP designates this area as Research and Academic.

6.9.2 2006 LRDP EIR Analysis

Impacts related to land use and planning from Lab growth under the 2006 LRDP through 2025 are evaluated in Section IV.H of the 2006 LRDP EIR and incorporated herein by reference. The LRDP EIR analysis concluded that all land use and planning impacts of Lab growth under the 2006 LRDP would be less than significant. The proposed project is within the scope of analysis of the 2006 LRDP EIR.

6.9.3 Environmental Checklist and Discussion

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
LAND USE AND PLANNING - Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

DISCUSSION:

a., b. **No Impact.** The project site is located in the southeastern area of the LBNL campus. The applicable land use plan is the 2006 LRDP. As described above, the 2006 LRDP designated this area of the campus as Research and Academic. The proposed CRT project is consistent with this land use designation. The new building space included in the proposed project is within the building space included in the 2006 LRDP program for these uses. The proposed use would not conflict with adjacent uses, which include various research facilities and parking. Because the project is located entirely within the LBNL site, it would not disrupt an existing community, nor would it conflict with an applicable land use plan or with adjacent existing or planned uses of adjacent sites. Therefore, no impacts would occur and no further analysis of these impacts is required.

c. **No Impact.** The project site is not within the purview of any habitat conservation plan or natural community conservation plan, nor would the proposed activity or development affect any area so designated, directly or indirectly. Therefore, no project impact would occur and no further analysis of this impact is required.

6.10 Mineral Resources

6.10.1 Background

The Initial Study for the 2006 LRDP, prepared as part of the EIR scoping process concluded that development on the Lab site would not impede the extraction or result in the loss of availability of mineral resources. According to the State of California Department of Mines and Geology, Mineral Resource Zones and Resource Sectors map, the Lab site is located in an area designated as MRZ-1. This designation refers to an area "where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence." Therefore, development on LBNL in accordance with the 2006 LRDP would not impede extraction or result in the loss of availability of mineral resources.

6.10.2 Environmental Checklist and Discussion

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
MINERAL RESOURCES - Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the State?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

DISCUSSION:

a.-b. **No Impact.** According to the State of California Department of Mines and Geology, Mineral Resource Zones and Resource Sectors map, the project site is located in an area designated as MRZ-1. This designation refers to an area "where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence." Therefore, development at LBNL in accordance with the 2006 LRDP would not impede extraction or result in the loss of availability of mineral resources. No impact would occur, and no further analysis of this impact is required.

6.11 Noise

6.11.1 Background

Section IV.I of the 2006 LRDP EIR addresses the noise effects of Lab growth under the 2006 LRDP through 2025 and is incorporated by reference in this Initial Study for this project pursuant to *CEQA Guidelines* Section 15150. The following discussion summarizes information presented in the 'Setting' subsection of Section IV.I of the 2006 LRDP EIR that is relevant to the proposed project.

Characterization of Noise

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Noise is defined as unwanted sound. Technically, sound is described in terms of amplitude (loudness) and frequency (pitch). The standard unit of sound amplitude measurement is the decibel (dB), and the decibel scale adjusted for A-weighting (dBA) is a special frequency-dependent rating scale that relates to the frequency sensitivity of the human ear.

Community noise usually consists of a base of steady "ambient" noise that is the sum of many distant and indistinguishable noise sources, as well as more distinct sounds from individual local sources. A number of noise descriptors are used to analyze the effects of community noise on people, including the following:

- Leq, the equivalent sound level, which is used to describe noise over a specified period of time, typically one hour.
- DNL, the energy average of the A-weighted sound levels occurring during a 24 hour period, with a 10 dBA "penalty" added to noise occurring during the hours of 10:00 PM to 7:00 AM to account for greater nocturnal noise sensitivity.
- CNEL, the Community Noise Equivalent Level, which is a 24-hour-average Leq with a "penalty" of 5 dB added to evening noise occurring between 7:00 PM and 10:00 PM, and a "penalty" of 10 dB added to nighttime noise occurring between 10:00 PM and 7:00 AM.

LBNL

Noise Sources

Within the boundaries of LBNL, the ambient noise levels are generated by vehicular traffic on the road network, heating, ventilation and air conditioning equipment associated with buildings, and other stationary equipment such as pumps, cooling towers, generators, and machine shop equipment. On-going construction projects also raise noise levels in the vicinity of the construction sites.

Sensitive Receptors

Sensitive receptors are noise-sensitive locations, where noise from a project's construction or operations could be experienced and could detract from or interfere with normal activities. Some land uses are considered more sensitive to ambient noise levels than others, due to the amount of exposure and the types of activities involved. Typically sensitive receptors include residences, schools, medical facilities, parks, and outdoor recreation areas. LBNL does not immediately border residential areas, except along its western and northern boundary near Cyclotron Road.

Project Site

The primary existing noise sources in the vicinity of the CRT project site are vehicular traffic on Cyclotron Road and Lawrence Road and stationary sources associated with the nearby buildings. Secondary, intermittent sources of noise include distant aircraft noise and sounds from parking lots. There are no noise-sensitive receptors in the vicinity of the project site. The nearest residential receptors are campus residences on the UC Berkeley Campus to the southwest, which are more than 700 feet from the site.

6.11.2 2006 LRDP EIR Analysis

Impacts related to noise from Lab growth under the 2006 LRDP through 2025 are evaluated in Section IV.I of the 2006 LRDP EIR and that analysis is incorporated herein by reference. The 2006 LRDP EIR analysis concluded that all noise impacts except two would be either less than significant or less than significant following implementation of proposed mitigation measures. The 2006 LRDP EIR concluded that LRDP Impact NOISE-1 related to construction noise would be significant and unavoidable even after mitigation and LRDP Impact NOISE-5 related to cumulative construction noise would also be significant and unavoidable after mitigation.

The proposed project is within the scope of analysis of the 2006 LRDP EIR. Relevant mitigation measures in the 2006 LRDP EIR have been incorporated into the proposed project planning and design and will be implemented during project operations consistent with LRDP or project-specific mitigation monitoring requirements.

6.11.3 Environmental Checklist and Discussion

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
NOISE - Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☒	☐	☐	☐
b) Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?	☒	☐	☐	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☐	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above	☒	☐	☐	☐

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
levels existing without the project?				
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

DISCUSSION:

a,c. **Potentially Significant Impact.** The 2006 LRDP EIR evaluated the noise impact related to Lab growth-related traffic and other operational sources and determined that the impact would be less than significant. Increases in traffic, mechanical equipment associated with the new building, and increases in LBNL hill site population due to the CRT project could result in potential long-term increases in noise levels. Although this less than significant impact is adequately addressed in the 2006 LRDP EIR, a project-specific discussion will be included in the CRT project EIR.

b. **Potentially Significant Impact.** Because construction at LBNL generally does not include pile driving, LBNL activities do not generate excessive groundborne vibration or groundborne noise levels, particularly to off-site receptors. Although this impact is adequately addressed in the 2006 LRDP EIR, a project-specific discussion will be included in the CRT project EIR.

d. **Potentially Significant Impact.** The 2006 LRDP EIR evaluated the potential increases in ambient noise levels that could result from construction activities and concluded that despite mitigation, the impact would be significant and unavoidable at some project locations that are close to sensitive receptors. Construction of the project could increase ambient noise levels in the project vicinity. This significant and unavoidable temporary increase in ambient noise levels has been adequately addressed in the 2006 LRDP EIR. However, a project-specific discussion will be included in the CRT project EIR.

e-f. **No Impact.** The project site is not located within the boundaries of any airport land use plan and is more than 2 miles from the nearest public airport. The site is also not within the vicinity of a private airstrip. Therefore, implementation of the proposed project would not be affected by operation of a public airport or private airstrip and no further analysis is required.

6.12 Population and Housing

6.12.1 Background

LBNL Population, Housing, and Residence Patterns

Section IV.J of the 2006 LRDP EIR addresses the population and housing effects of campus growth under the 2006 LRDP through 2025, and is incorporated by reference in this Initial Study for this Project pursuant to *CEQA Guidelines* Section 15150. The following discussion summarizes information presented in the 'Setting' subsection of Section IV.J of the 2006 LRDP EIR that is relevant to the proposed project.

In 2003, there were 3,800 people employed by the Lab. Most of these employees (56 percent) were full-time employees in scientific and technical positions. Administrative support positions accounted for 16 percent of Lab employment. Faculty (seven percent of the total), and postdoctoral researchers (six percent of the total), as well as undergraduate and graduate students (combined representing 15 percent of the total) were also counted among the Lab's employees.

In 2003, over the course of the year, a total of about 2,500 people used Lab facilities as guests. Guests include industry and government researchers working at the Lab for short-term assignments, scientists visiting from other academic institutions, or people from other institutions such as UC Davis who use Lab facilities regularly over a period of weeks or months. On an average day, 40 percent of total annual guests use Lab facilities. In 2003, this represented about 1,000 people on any given day. The Lab estimates an adjusted total daily population (ADP) of 4,375 people for 2003, counting both employees and guests; of the total, 3,650 ADP are on the Laboratory's main site on any given day.[2]

Lab employees and their dependents represented 2.0 percent of the Berkeley and Albany population in 2003. In all other residential locations, Lab employees and their dependents accounted for less than one percent of the total population. Lab employees and their dependents represented 0.3 percent of the total population of Emeryville, Oakland and Piedmont; 0.6 percent of the total population of El Cerrito, Richmond, and San Pablo; and 0.7 percent of the total population of Lafayette, Moraga, and Orinda. For the Bay Area region as a whole, Lab employees and the other members of their households represented 0.1 percent of total regional population in 2003.

Regional Population and Housing

There were 6.8 million people living in the nine-county Bay Area region in 2000. The region's population grew at a compound rate of 1.2 percent per year from 1990 to 2000. The Bay Area also produced substantial increases in employment opportunities in the 1990s. The number of jobs increased at a compound rate of 1.6 percent per year, growing to a total of 3.8 million jobs in the nine-county region in 2000.

Housing production has not kept pace with demand associated with employment growth, in-migration, and household formation. Between 1990 and 2000, about 187,000 housing units were added in the region (an 8 percent increase). During the same period, the number of employed residents increased by 456,000 (14 percent) and the number of jobs increased by 548,000 (17 percent). Housing price increases reflect this imbalance between supply and demand. In April 2003, market prices for single-family homes in the

2 The LBNL estimate of adjusted daily population (ADP) is defined to include FTE employment plus 40 percent of total annual guests.

Bay Area were about double the price levels observed in 1990. In April 2003, the average single-family home price in the Bay Area was $580,000. New home prices in the Bay Area are 50 to 70 percent higher than new home prices in neighboring San Joaquin and Stanislaus counties, and prices for existing homes in the Bay Area are more than double those in the neighboring counties.

Residential population and employed population growth in the Bay Area have been accommodated through increases in the number of people and workers living in both existing and new units. There has also been a substantial increase in the number of people working in the Bay Area but living in surrounding counties where new housing is more plentiful and more affordable.

Projections prepared by the ABAG in June 2003 reflecting a "smart growth forecast" for the Bay Area show regional population growth of almost 1.7 million and an increase of about 600,000 households for the 2025 period. For the region as a whole, the projection is for growth of 25 percent over levels in 2000. In a departure from previous trend-based forecasts, this population and housing scenario reflects a "smart growth" vision: emphasizing infill development to revitalize central cities, support and enhance public transit, and preserve open space and agricultural land. The smart growth scenario assumes that local policies and regulations that currently limit this type of development are changed and that there is significant public investment on a regional and local level in infrastructure and in housing to achieve higher levels of housing production, and particularly high density housing near transit. The "smart growth" scenario illustrates a development pattern that, over the long term, assumes central Bay Area locations such as San Francisco, Berkeley, Oakland, Emeryville, Alameda, Fremont, Union City, Albany, El Cerrito, and Richmond absorb more housing production and population growth than would otherwise be the case. Regionally and locally, the scenario has implicit benefits in an improved balance of jobs and housing, less in-commuting, and more efficient development patterns that preserve open space and agricultural land.

Population and household growth for Berkeley and Albany represent about one percent of the total population and household growth forecast for the Bay Area region. Population growth is expected to continue in the City of Berkeley, building on the trends of the 1990s. The "smart growth forecast" shows an increase of over 13,000 people in the City of Berkeley between 2000 and 2025 (a 13 percent increase over 2000 levels) and an increase of almost 5,000 households in the city (an 11 percent increase over that same period). Using the adjusted 2000 population count for the City of Berkeley as a base, the total population living in the city could reach 119,700 by 2025. In Albany, population is forecast to increase by 14 percent to a total of 18,700 people in 2025. The forecast shows an additional 850 households in Albany between 2000 and 2025, an increase of 12 percent over the period.

The numerical and percentage increases in population and housing are expected to be greater in other parts of the Bay Area that house substantial numbers of Lab employees. The expected increases in population and households are around 20 percent or more in Oakland, Emeryville, and Piedmont; in El Cerrito, Richmond, and San Pablo; and in central Contra Costa County communities.

The 2006 LRDP would increase the total ADP from 4,375 in 2003 to 5,375 in 2025, an increase of 1,000 people or 23 percent.

Proposed Project

The proposed CRT Facility would accommodate approximately 300 employees, of which approximately 225 would be LBNL staff and 75 would be UC Berkeley staff and students. Of the approximately 225 LBNL staff, about 135 would be existing staff relocated from the adjacent Building 50 Complex, 70 would

relocated from an offsite LBNL facility, and approximately 20 staff would be new or relocated LBNL staff. The CRT facility would thus add up to approximately 90 additional staff to the Lab site. Under the 2006 LRDP, each new LBNL employee is assumed to require one housing unit in the Bay Area.

6.12.2 2006 LRDP EIR Analysis

Impacts related to population and housing from Lab growth under the 2006 LRDP through 2025 are evaluated in Section IV.J of the 2006 LRDP EIR. The 2006 LRDP EIR concluded that all impacts related to population and housing impacts of Lab growth under the 2006 LRDP would be less than significant. The proposed project is within the scope of analysis of the 2006 LRDP EIR.

6.12.3 Environmental Checklist and Discussion

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
POPULATION & HOUSING - Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

DISCUSSION:

a. **Less Than Significant Impact.** The proposed project does not include residential uses, and would not require extension of roads or other infrastructure that could indirectly induce substantial population growth. It would generate incidental, short-term construction employment that would create an undetermined number of new jobs. Operation of the project would involve up to 300 people (employees and visitors). Of the projected CRT population, it is estimated that approximately 210 employees would be relocated from the existing laboratories and offices within LBNL and UC Berkeley. The remaining 90 new Lab site employees, including 70 employees from the NERSC facility and 20 potential new employees that would be generated by the proposed project, are within the anticipated LRDP growth. The proposed project would represent 9 percent of the 1,000 new employees that would be added to the Lab site by buildout of the 2006 LRDP. The environmental impacts associated with the growth in the Lab's ADP were adequately addressed in the 2006 LRDP EIR. No conditions have changed and no new

information has become available since the certification of the 2006 LRDP EIR that would alter this previous analysis. Therefore, no further analysis of this impact is required.

Cumulative Impacts

LRDP Impact POP-2 evaluated the cumulative impact of 2006 LRDP growth in conjunction with other regional growth on population and housing. As noted in the Setting, LBNL is one of the largest employers in Berkeley, and by far the greatest number of Lab employees live in Berkeley or the immediate vicinity. Accordingly, growth in Berkeley (including at UC Berkeley) is the focus of the cumulative analysis in the 2006 LRDP EIR.

In addition to the population growth associated with the 2006 LBNL LRDP, other future growth would contribute to existing population and housing totals. This future growth could be accommodated through both new development and through changes in the occupancy and use of existing housing and other building space.

As part of the environmental review for its General Plan Update in 2001, the City of Berkeley prepared estimates for 2000 and projections of growth through 2020 in the city under the new General Plan policies. City staff projected an increase of about 3,200 households in the city between 2000 and 2020 and a total population of about 116,000 in 2020 – about the same number of people that lived in Berkeley in 1970.

The UC Berkeley 2020 LRDP could result in an increase of 2,870 faculty and staff working in the Campus Park and adjacent blocks and an increase in 1,650 students. In addition, an important objective of the UC Berkeley 2020 LRDP is increasing the housing supply near campus for students, faculty, and staff. Under the UC Berkeley 2020 LRDP, there could be an additional 2,600 beds of housing added within one mile of the center of campus. It is likely that most of this housing would be developed in the city of Berkeley.

Many students, faculty, and staff prefer to live in Berkeley, close to the campus. Therefore, the employment and enrollment growth associated with the two LRDPs, in conjunction with other projected population growth, would represent substantial cumulative population growth and a concentration of population in the City of Berkeley. The employee population growth associated with the proposed 2006 LBNL LRDP would contribute to this cumulative impact; however, increases in population growth associated with the implementation of the 2006 LRDP would represent about two percent of the total number of people projected to be living in the Berkeley and Albany in 2025, and less than one percent of total projected population in 2025 in all other places of residence. Housing demand associated with implementation of the 2006 LRDP could account for less than one percent of the total increase in households projected for most communities where LBNL employees live. These increases under the 2006 LRDP represent a less-than-significant impact under existing conditions, and therefore would not be considered a cumulatively considerable contribution to potential population and housing impacts.

The university-related housing production anticipated in the UC Berkeley 2020 LRDP could be part of the City of Berkeley General Plan scenario of increased housing supply. At the same time, more housing production would lead to greater concentration of population in the city. As noted above, the City of Berkeley General Plan EIR found that such a concentration of population in Berkeley would result in a net benefit both to the city and to the region as a whole.

In light of the above, lab growth under the 2006 LRDP would not contribute to cumulative adverse effects with regard to population or housing. Because the proposed project is within the 2006 LRDP scope of development, the proposed project would also not contribute to cumulative adverse effects related to population and housing.

b.-c. **No Impact.** The LBNL site does not include housing or long-term residential uses, and no housing would be displaced with implementation of the proposed project. No individuals would be displaced as a result of the project and no replacement housing would be required. Therefore, no further analysis of these impacts is required.

6.13 Public Services

6.13.1 Background

Section IV.K of the 2006 LRDP EIR addresses the effects on public services from LBNL growth under the 2006 LRDP through 2025 and is incorporated by reference in this Initial Study for this project pursuant to *CEQA Guidelines* Section 15150. The following discussion summarizes information presented in the 'Setting' subsection of Section IV.K of the 2006 LRDP EIR.

In accordance with the *CEQA Guidelines*, this public services analysis evaluates the environmental effects associated with any physical changes required to meet increases in demand for public services, including police, fire protection, schools, and parks. Project-level public-services impacts are addressed by evaluating the effects of LBNL employee growth on public services that directly serve the project site population.

Fire Protection

The Alameda County Fire Department has a contract with LBNL to provide firefighting services and typically assists the campus fire department with structural fires. The Lab also has a contract with the Alameda County Fire Department that provides LBNL an "around-the-clock" engine company staffed by four Hazardous Materials Emergency Response (HAZMAT) certified firefighters. LBNL and the City of Berkeley have developed an Automatic Aid Agreement, under which the on-site fire station is the first responder for a portion of north Berkeley, including portions of the UC Berkeley campus. The Berkeley Fire Department provides paramedic transport for LBNL; therefore, if a patient in a medical emergency requires transport to a hospital, a City of Berkeley ambulance responds at the Lab. The City of Oakland Fire Department serves the far eastern and southeastern extent of LBNL. The 2006 LRDP EIR also discusses hazardous materials emergency response and the emergency program. HAZMAT automatic aid is available through the Berkeley Fire Department or the Alameda County Fire Department. The Lab's master Emergency Program Plan establishes policies, procedures and an organizational structure for responding to and recovering from a major disaster at LBNL. In addition, the 2006 LRDP EIR describes the Berkeley Lab's Vegetation Management Plan as a prevention program for wildland fires.

Law Enforcement

Police services at LBNL are provided through a contract with the UC Berkeley Police Department (UCPD), as well as with a private security provider responsible for outside security needs including Laboratory access, property protection, and traffic control. The UCPD handles all patrol, investigation, and related law enforcement duties for UC Berkeley, LBNL, and other University-owned properties. UCPD operates 24 hours a day, seven days a week, coordinating closely with the City of Berkeley Police Department. UCPD and the Oakland Police Department are members of the California Law Enforcement Master Mutual Aid Plan; all law enforcement agencies in the state belong to this plan to provide each other information and resources when needed. Additionally, the Lab has an annual renewable contract with UCPD that provides, when requested, law enforcement emergency response, limited patrols, criminal investigations, and VIP protection. UCPD and the Berkeley Police Department have an agreement regarding jurisdiction over off-site locations occupied by UC staff and Lab staff; this agreement is reviewed and updated annually. The Lab does not have an agreement with Oakland Police Department.

LBNL is protected by a perimeter fence that provides access through vehicle entrance points, hardware lock-and-key sets at critical doors and by an electronic system pre-coded to permit entry only to authorized card holders. Vehicular access onto the LBNL site is controlled by security personnel at the three vehicle entrance gates who visually inspect entering vehicles.

Schools

The Berkeley Unified School District (BUSD) and Oakland Unified School District (OUSD) provide public elementary and secondary school services to dependents of LBNL personnel who live in these two communities.

Parks and Recreation

The East Bay Regional Park District (EBRPD) manages over 95,000 acres within Alameda and Contra Costa counties, including 65 regional parks, recreational areas, wilderness, shorelines, preserves, and land bank areas. The EBRPD regional park properties in the vicinity of the LBNL site include Tilden Park and the Claremont Canyon Preserve.

UC Berkeley manages parks and athletic and recreational facilities that serve the University and the wider community. The University also owns the 2.3-acre People's Park located south of the UC Berkeley campus. Athletic and recreational facilities are located within the central campus and also within the Strawberry Canyon Recreation Area. Additional resources include the Ecological Study Area.

The City of Berkeley's Parks, Recreation and Waterfront Department manages the city's parks and open space. The City has 243 acres of City-owned and/or maintained parks and open space throughout Berkeley, excluding the 99-acre Aquatic Park. There are 52 parks providing traditional activities such as athletic fields, swimming pools, and tennis and basketball courts, as well as numerous tot and school-age play areas, community gardens, rock climbing, and a variety of water sports at the Berkeley Marina. The City of Berkeley maintains the parks-to-population ratio of 2.0 acres of parkland per 1,000 persons that was established in the 1977 City of Berkeley Master Plan (City of Berkeley, 2002).

The City of Oakland's Office of Parks, Recreation and Cultural Affairs manages the city's parks and recreation centers. According to the Open Space, Conservation and Recreation Element of the Oakland General Plan, an estimated 3,073 acres of total parklands are available within Oakland's city limits, providing about 8.26 acres of parkland per 1,000 residents; local-serving parks provide an estimated 1.33 acres per 1,000 residents.

Project Site

The LBNL personnel and the new building space developed under this project would be served by public services agencies in the Cities of Berkeley and Oakland, Alameda County, and the Lab in the manner discussed above.

6.13.2 2006 LRDP EIR Analysis

Impacts on public services from development under the 2006 LRDP through 2025 are evaluated in Section IV.K of the 2006 LRDP EIR. Because implementation of the 2006 LRDP would not result in any significant impacts to public services and recreation, the 2006 LRDP EIR did not identify any mitigation

measures for impacts to public services and recreation. The proposed project is within the scope of analysis of the 2006 LRDP EIR.

6.13.3 Environmental Checklist and Discussion

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
13. **PUBLIC SERVICES**				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i) Fire protection?	☐	☐	☒	☐
ii) Police protection?	☐	☐	☒	☐
iii) Schools?	☐	☐	☒	☐
iv) Parks?	☐	☐	☒	☐
v) Other governmental services?	☐	☐	☐	☒

DISCUSSION:

a.i. **Less Than Significant Impact.** Construction of the new building and the additional employees and students associated with the proposed project would potentially increase the need for emergency fire services. The 2006 LRDP EIR analyzed impacts of the LBNL development on the Alameda County Fire Department's Fire Station 19, which currently serves the LBNL site. The 2006 LRDP EIR concluded that based on current and expected demand for fire protection services and discussion with Alameda County Fire Department, implementation of the 2006 LRDP would not result in the need for new facilities, staff, or equipment to provide adequate fire protection (LRDP Impact PUB-1). The Alameda County Fire Department expects that additional staff and buildings projected under the LRDP would result in an additional three to five calls per month, which could be accommodated without additional staff or facilities. Accordingly, the LRDP EIR concluded that the impacts of the 2006 LRDP, including the growth and development included in the proposed project, would be less than significant and no further mitigation is required. No conditions have changed and no new information has become available since certification of the 2006 LRDP EIR that would alter this previous analysis. The development proposed by

the project is within the levels of development and growth analyzed in the 2006 LRDP EIR. Therefore, the impact of the proposed project in relation to fire protection services would be less than significant and no further analysis of this impact is required.

Cumulative Impacts

Cumulative conditions related to fire and police protection services are discussed under LRDP Impact PUB-5 in the 2006 LRDP EIR. Implementation of the 2006 LRDP would contribute to an increase in demand for fire protection services and police services. However, the 2006 LRDP EIR concluded that this increased demand would not result in the need for new or physically altered facilities, the construction of which could cause significant environmental impacts. While foreseeable development may cause call volume for fire services to increase slightly, such incremental increases in demand for fire protection services can be accommodated without additional staffing or facilities. The increase in population proposed by the project is well within the levels of growth analyzed in the 2006 LRDP EIR and the demand for police and fire services attributable to the proposed project is within the scope of the 2006 LRDP analysis.

Reasonably foreseeable development in the East Bay could result in the increased need for new or altered fire protection or police facilities in the region. The City of Berkeley General Plan indicates the need for additional fire protection facilities and the City of Oakland General Plan indicates the need for expanded facilities or the seismic retrofit of existing facilities. However, the 2006 LRDP EIR concludes that implementation of the 2006 LRDP would not result in the need for new facilities, staff, or equipment to provide adequate fire protection or police services. Accordingly, it concludes that the LRDP's contribution to cumulative demand would not be cumulatively considerable. Furthermore, planned residential development in local jurisdictions where Berkeley Lab employees might live, such as the cities of Berkeley or Oakland, would be subject to the local agency's zoning ordinance and general plan policies, which would require that environmental impacts associated with new residential development be mitigated to the maximum extent feasible. No conditions have changed and no new information has become available since certification of the 2006 LRDP EIR that would alter this previous analysis.

a.ii. **Less Than Significant Impact.** Construction of new building space and the additional staff associated with the proposed project would increase the potential need for police protection services. Police services are provided through the UCPD and a private on-site security firm on a contract basis. The private security firm is responsible for on-site security needs including access to the LBNL site, property protection, and traffic control, and can respond to any road-accessible area of LBNL in less than five minutes. Under the existing contract, UCPD responds to LBNL as needed, and response times for UCPD are also less than five minutes (LRDP Impact PUB-2). According to the 2006 LRDP EIR, the increase in on-site population and building space that would result from implementation of the 2006 LRDP would incrementally increase calls for police services. Based on the historic average of calls (approximately 10 calls per year), buildout of the 2006 LRDP could increase the number of calls for police services by about five additional calls per year. In addition, there would be an increased demand for on-site security, which would be addressed in the contract for services between the LBNL and the private security provided, to ensure adequate police protection for the on-site population. The 2006 LRDP EIR concluded that this incremental increase in demand for police services is not anticipated to result in the need for new facilities, staff, or equipment to provide adequate police services. Accordingly, the 2006 LRDP EIR concluded that impacts of the 2006 LRDP, including the growth and development included in the proposed project, would be less than significant and no mitigation is required. No conditions have changed and no new information has become available since certification of the 2006 LRDP EIR that would alter this previous analysis. The development proposed by the project is within the levels of

development and growth analyzed in the 2006 LRDP EIR. Therefore, the impact of the proposed project in relation to police protection services would be less than significant and no further analysis of this impact is required.

Cumulative Impacts

See discussion under Item a.i, above.

a.iii. **Less Than Significant Impact.** Project-related increases in personnel could draw more families with school-aged children to the LBNL commute area. The proposed project would not develop residential uses and therefore would not directly generate new student enrollment in the BUSD or OUSD (or other school districts). However, it is possible that project-related households would relocate to the cities of Berkeley and Oakland as a result of new employment generated by implementation of the proposed project. School-aged children in these households would attend BUSD or OUSD schools.

Using student generation rates of 0.7 student per household from the State Department of Education, the 2006 LRDP EIR estimated that implementation of the 2006 LRDP would generate approximately 175 elementary or middle school children and 70 high-school students in Berkeley. This represents less than two percent of current enrollment. Based on the existing capacity in the BUSD schools, the elementary, middle, and high schools could accommodate the 245 new students that could indirectly result from implementation of the 2006 LRDP. In Oakland, the 2006 LRDP could generate up to 70 elementary or middle school children and 28 high school students. This represents less than one quarter of a percent of the existing student enrollment in Oakland. According to the 2006 LRDP EIR, these new students introduced to the OUSD could be accommodated in existing school facilities and would not require the construction of new school sites (LRDP Impact PUB-3). Furthermore, the 2007 LRDP EIR concluded that the indirect contribution to student enrollment due to implementation of the 2006 LRDP would occur incrementally over a 20-year planning horizon, and would not, by itself, induce a substantial or immediate population increase or result in a substantial increase in the demand for housing. Accordingly, this would not result in the need for new or physically altered public school facilities. The 2006 LRDP would therefore have a less than significant impact, and no mitigation is required. No conditions have changed and no new information has become available since certification of the 2006 LRDP EIR that would alter this previous analysis. The growth proposed by the project is within the levels of growth analyzed in the 2006 LRDP EIR and the demand for school services attributable to the proposed project would be within the scope of the 2006 LRDP analysis. Therefore, the impact of the proposed project in relation to public schools would be less than significant and no further analysis of this impact is required.

Cumulative Impacts

According to the 2006 LRDP EIR, implementation of the 2006 LRDP under cumulative conditions would not result in the need for new or physically altered public school facilities (LRDP Impact PUB-6). As discussed under LRDP Impact PUB-3 of the 2006 LRDP EIR, the 2006 LRDP would include no housing, and therefore the effect of implementing the LRDP would be indirect; that is, any increased demand for school facilities would derive from residential development to accommodate increased daily population at the Lab. Because the 2006 LRDP would result in no direct impact on school facilities, and because the indirect effect would be minimal, implementation of the 2006 LRDP would not result in a considerable contribution to any cumulative increase in the demand for school facilities. The increase in population proposed by the project is well within the levels of growth analyzed in the 2006 LRDP EIR and the

demand for public school services attributable to the proposed project would be within the scope of the 2006 LRDP analysis.

Compared to existing student enrollment, the 2006 LRDP would increase enrollment by less than three percent in the BUSD and less than one quarter of a percent in the OUSD. Under cumulative conditions, these percentages would decrease since both the Berkeley General Plan and the Oakland General Plan provide for future residential and employment growth. Therefore, the proposed project would not result in a considerable contribution to the demand for school facilities that would result in the need for new or physically altered facilities under cumulative conditions.

Furthermore, planned residential development in local jurisdictions where new Berkeley Lab employees might live, such as the cities of Berkeley or Oakland, would be subject to the local agency's zoning ordinance and general plan policies. Planned development may also be required to pay school impact fees that, under CEQA, are deemed as full and complete mitigation for effects on schools. Therefore, the 2006 LRDP's cumulative effect on public school facilities would not be considerable. No conditions have changed and no new information has become available since certification of the 2006 LRDP EIR that would alter this previous analysis.

a.iv. **Less Than Significant Impact.** Project-related increases in personnel would draw more residences into the area and would thus increase demand for parks and recreational facilities. The 2006 LRDP EIR analyzed potential impacts of Lab growth on parks and recreational facilities based on current residential trends for LBNL employees in Berkeley and Oakland. Assuming the current residential trends for LBNL employees continue, approximately 35 percent (350) of the new LBNL employees generated by the 2006 LRDP would reside in Berkeley, resulting in an additional demand for 0.7 acre of parkland. Assuming that approximately 14 percent (140) of the new LBNL employees generated by the 2006 LRDP would be Oakland residents, implementation of the 2006 LRDP would result in a demand for an additional 1.4 acres of parkland and an increase of 0.6 acre of local-serving parkland. The additional demand for parks and recreational facilities would be relatively small, compared to Berkeley's 243 acres of existing parkland and Oakland's 3,703 acres of parkland.

Furthermore, implementation of the 2006 LRDP would not result in housing development, and thus the effect of the 2006 LRDP on parks and recreation would be indirect, resulting from an increase in residential population related to an increase in employees at LBNL. Construction of new housing is anticipated in Berkeley, Oakland, and elsewhere in the next 20 years, based on current projections by the Association of Bay Area Governments, which are relied upon in the preparation of city and county general plans. Under the City of Berkeley and the City of Oakland planning process, planned residential uses in each city would be subject to the City's zoning ordinance and general plan policies. While significant environmental impacts from the development of parkland in urban areas are generally not anticipated, the environmental review processes of the cities of Berkeley and Oakland, and other jurisdictions, would ensure that environmental impacts associated with the development of residential projects and their demand for recreational facilities, as well as the development of recreational facilities themselves, are mitigated to the maximum extent feasible. It would be speculative to assume that there would be significant and unavoidable impacts from the development of parks or recreation facilities in the region. In summary, the 2006 LRDP EIR concluded that effects on parks and recreation resources from the 2006 LRDP would be less than significant and no mitigation is required (LRDP Impact PUB-4). No conditions have changed and no new information has become available since certification of the 2006 LRDP EIR that would alter this previous analysis. The growth proposed by the project is within the levels of growth analyzed in the 2006 LRDP EIR and the demand for park and recreational services

attributable to the proposed project would be within the scope of the 2006 LRDP analysis. Therefore, impacts of the proposed project in relation to parks and recreation would be less than significant and no further analysis is required.

Cumulative Impacts

Implementation of the 2006 LRDP would not substantially affect the provision of parks and recreation facilities under cumulative conditions (LRDP Impact PUB-7). The increase in population proposed by the project is well within the levels of growth analyzed in the 2006 LRDP EIR and the demand for parks and recreation services attributable to the proposed project would be within the scope of the 2006 LRDP analysis. Implementation of the 2006 LRDP along with cumulative development could result in an increased demand for parks and recreation facilities in Berkeley and Oakland. The 2006 LRDP does not include any housing component, and therefore the effect of implementing the 2006 LRDP would be indirect; that is, any increased demand for park and recreation facilities would derive from new residential development to accommodate increased daily population at the Lab. As noted under LRDP Impact PUB-4 in the 2006 LRDP EIR, planned residential uses in each city (as well as in other local jurisdictions where the Lab employees might reside) would be subject to the local agency's zoning ordinance and general plan policies, which would require that environmental impacts associated with the development of parks and recreation facilities are mitigated to the maximum extent feasible. Because the 2006 LRDP would result in no direct impact on park and recreation facilities, and because any indirect effect would be minimal, implementation of the 2006 LRDP would not result in a considerable contribution to any cumulative increase in the demand for park and recreation facilities. No conditions have changed and no new information has become available since certification of the 2006 LRDP EIR that would alter this previous analysis.

a.v. **No Impact.** No other governmental services would be affected by the proposed project and no further analysis is required.

6.14 Recreation

6.14.1 Background

Section IV.K (Public Services and Recreation) of the 2006 LRDP EIR addresses the demand for recreational facilities and the potential for substantial deterioration of recreational facilities as a result of development under the 2006 LRDP through 2025 and is incorporated by reference in this Initial Study for this project pursuant to *CEQA Guidelines* Section 15150.

Background conditions for recreation are discussed under Section 6.13.1 above.

6.14.2 Environmental Checklist and Discussion

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
RECREATION				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☒	☐

DISCUSSION:

a. **Less Than Significant Impact.** Impacts associated with the increase in demand for parks and recreational facilities in the region as a result of project-related growth in LBNL employees are discussed in the response to 13a, "Parks" above. Because indirect population increase associated with the proposed project is relatively small, increased demand for recreational facilities that could cause physical deterioration of recreational facilities is not expected to occur as a result of the proposed project. This impact is considered less than significant and no further analysis of this impact is required.

b. **Less Than Significant Impact.** The project would not include recreational facilities. Since the project's impacts on existing recreational facilities would be less than significant (see response to 13a, "Parks above), the need for new or expanded recreational facilities is not expected to be a result, either direct or indirect, of the proposed project. Therefore, this impact would be less than significant and no further analysis of this impact is required.

6.15 Transportation and Circulation

6.15.1 Background

Section IV.L of the 2006 LRDP EIR addresses the transportation, circulation, and parking effects of Lab growth under the 2006 LRDP through 2025 and is incorporated by reference in this Initial Study for this project pursuant to *CEQA Guidelines* Section 15150. The following discussion summarizes information presented in the 'Setting' subsection of Section IV.L of the 2006 LRDP EIR, which provides a basis for the analysis of the environmental effects of the proposed project.

Regional and Lab Roadway Network

LBNL is located close to three regional highways: Interstate 80/580 about 3 miles to the west and State Routes (SR) 24 and 13 about 2 miles to the south. Access to I-80/580 is via arterial roads in the City of Berkeley and Oakland, including University Avenue, Ashby Avenue, Hearst Avenue, Gayley Road, and College Avenue. Access to SR 24 and 13 is via Tunnel Road.

The Lab is served by three roadway entrances: (1) the Blackberry Canyon Gate, which is the main entrance to the Lab and is on Cyclotron Road, north of the intersection of Hearst Avenue and Gayley Road in the southwestern portion of the Lab; (2) Strawberry Canyon Gate, which is located at the eastern end of the Lab and is accessed via Centennial Drive; and (3) Grizzly Peak Gate, located along the northern boundary of the Lab and accessed via Centennial Drive. Internal circulation on the Lab site is provided by an east-west roadway system that generally follows the site contours.

Roadway Levels of Service

Level of service (LOS) is a general measure of traffic operating conditions, whereby a letter grade from A (the best) to F (the worst) is assigned to roadway intersections. These grades represent the comfort and convenience associated with driving from the driver's perspective. To assess the worst-case traffic conditions, LOS is measured during morning (generally 7 AM to 9 AM) and afternoon (generally 4 PM to 6 PM) peak commute times. The LOS standard for City intersections is LOS D. Of the 20 city intersections evaluated in the 2006 LRDP EIR, only one intersection (Bancroft Way at Gayley Road/Piedmont Avenue) currently operates at an unacceptable level of service. The 2006 LRDP EIR found that by 2025, even without traffic added by Lab growth, three additional intersections would operate at unacceptable levels of service.

Parking

There are a total of 2,175 off-street and on-street parking spaces at the Lab. Because access to the Lab is controlled, parking facilities are not open to the general public. The Lab implements a permit parking program. The Lab discourages the use of single occupant vehicles for access to the campus as part of its Transportation Demand Management (TDM) program.

Bicycle and Pedestrian Network

About 10 percent of the Lab employees use bicycles for their commutes. Pedestrian and bicycle facilities within the Lab site are discontinuous. Due to the site's hilly terrain, these facilities are mainly used to move between nearby building clusters; for longer trips, LBNL employees typically use shuttles or personal vehicles.

Transit

The Lab is served by LBNL shuttles that run between the Lab and the Center Street/Shattuck BART station on 10 minute headways on weekdays and an express shuttle that operates on an hourly schedule during commute hours between the Lab and the Rockridge BART station. The Lab shuttle stops have been coordinated with AC Transit bus lines serving downtown Berkeley.

Project Site

The CRT project site is located west of Buildings 70 and 70A and is served by Lawrence and Seaborg roads.

6.15.2 2006 LRDP EIR Analysis

Impacts on traffic, circulation, and parking from of Lab growth under the 2006 LRDP through 2025 are evaluated in Section IV.L of the 2006 LRDP EIR. The 2006 LRDP EIR analysis concluded under LRDP Impact TRANS-1 that the addition of LRDP-related traffic would degrade the levels of service at three study intersections. Fair share funding of traffic improvements pursuant to LRDP Mitigation Measures TRANS-1a, 1b, 1c and 2d would reduce the impact to a less-than-significant level if a plan were currently in place for those traffic improvements. At this time, no plan is in place for the installation of those traffic improvements, although these measures would remain binding mitigation commitments. Accordingly, although mitigation may be accomplished in the future and the mitigation commitment remains binding, at this time these impacts cannot be determined to be mitigated to a less than significant level. The Regents found this remaining significant impact to be acceptable because the benefits of the project outweigh this and the other unavoidable environmental impacts of the project. Because the Lab cannot guarantee the implementation of the proposed mitigation measures, this impact would be significant and unavoidable. The 2006 LRDP EIR also concluded that a significant and unavoidable cumulative traffic impact (LRDP Impact TRANS-8) would occur at certain study intersections. LRDP Mitigation Measure TRANS-8 would be implemented for this impact, but as identified above, there would be a significant unavoidable impact. These impacts were adequately analyzed in the 2006 LRDP EIR and were fully addressed in the Findings and Statement of Overriding Considerations adopted by The Regents in connection with its approval of the 2006 LRDP. All other traffic impacts were determined to be less than significant. No conditions have changed and no new information has become available since certification of the 2006 LRDP EIR that would alter this previous analysis.

The proposed project is within the scope of development analyzed in the 2006 LRDP EIR. Relevant mitigation measures in the 2006 LRDP EIR have been incorporated into the proposed project planning and design and will be implemented during project operations consistent with 2006 LRDP or project-specific mitigation monitoring requirements.

6.15.3 Environmental Checklist and Discussion

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
TRANSPORTATION/CIRCULATION - Would the project:				
a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☒	☐	☐	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☒	☐	☐	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☒	☐	☐	☐
e) Result in inadequate emergency access?	☒	☐	☐	☐
f) Result in inadequate parking capacity?	☒	☐	☐	☐
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☒	☐	☐	☐

DISCUSSION:

a-b **Potentially Significant Impact.** Impacts related to increases in traffic in relation to the existing traffic load for the 2006 LRDP are addressed under Impact TRANS-1 in the 2006 LRDP EIR. The 2006 LRDP EIR found that with full development under the 2006 LRDP, by 2025, daily traffic on study area roadways due to new employees and visitors to the Lab site would increase and result in significant level of service impacts at three study area intersections. Mitigation measures were developed to improve levels of service at these intersections, but for reasons presented above, the impacts would not be reduced

to a less than significant level. The proposed project is within the development evaluated in the LRDP EIR, and the project would contribute to this significant and unavoidable impact. The impact is adequately addressed in the 2006 LRDP EIR and is fully addressed by the Findings and Statement of Overriding Considerations adopted by The Regents in conjunction with the adoption of the 2006 LRDP. No conditions have changed since the certification of the 2006 LRDP EIR that would change the results of this 2025 LRDP level analysis.

The proposed project would be operational by 2010, and an evaluation of the effect from the addition of project traffic on existing or near-term conditions will be included in the CRT project EIR. This impact could potentially be significant, and will discussed in the CRT project EIR.

c. **No Impact.** The Initial Study prepared for the scoping of the 2006 LRDP EIR concluded that implementation of the 2006 LRDP would not alter existing air traffic patterns and this issue was not discussed further in the 2006 LRDP EIR. As traffic patterns for the proposed CRT project are within the scope of the 2006 LRDP, the proposed project would also not hinder aviation activity. Therefore, implementation of the project would result in no impact from the safety risks associated with air traffic patterns and no further analysis of this impact is required.

d., e., g. **Potentially Significant Impact.** Impacts TRANS-5, TRANS-6 and TRANS-7 in the 2006 LRDP EIR discuss the effects of the 2006 LRDP on potential conflicts with pedestrians or bicyclists and traffic associated with construction of new facilities. A detailed analysis of consistency with policies related to alternative forms of transportation will be included in the EIR. Although impacts associated with alternative transportation and emergency access have been adequately addressed in the 2006 LRDP EIR, project-specific impacts will be further discussed in the CRT project EIR.

f. **Potentially Significant Impact.** Impact TRANS-4 in the 2006 LRDP EIR discusses the increase in parking and provisions for parking as a result of implementing the 2006 LRDP. The project proposes four parking spaces, which, in combination with other existing parking lots, may be inadequate on-site parking based on the proposed use of the site. Although impacts associated with parking have been adequately addressed in the 2006 LRDP EIR, project-specific impacts will be further discussed in the CRT project EIR.

6.16 Utilities, Energy and Service Systems

6.16.1 Background

Section IV.M of the 2006 LRDP EIR addresses the effects of Lab growth under the 2006 LRDP on utility systems that serve the Lab site and is incorporated by reference in this Initial Study for this project pursuant to *CEQA Guidelines* Section 15150. The Lab is served by the following utility and service systems:

Potable and Fire Protection Water: East Bay Municipal Utility District (EBMUD) provides high pressure water to the Lab via two points of connection – a 12-inch meter on Campus Drive in the Shasta Pressure Zone of the district and a 6-inch meter on Summit Road from the Berkeley View Pressure Zone. On the site, water is distributed by an extensive water distribution system which provides water not only to the buildings but also for use in cooling towers, for irrigation, and for other uses. The Lab also maintains three 200,000-gallon water storage tanks on site for emergency water supply. In 2003, the total annual water consumption at the Lab was approximately 41.6 million gallons. Even though the total building space at the Lab has increased, water usage has declined substantially since 1990 because of water conservation measures that the Lab has implemented in the past few years.

Wastewater: Wastewater generated at the Lab is collected in a gravity-flow system that eventually discharges into the City of Berkeley's sanitary sewer system through a monitoring station located at Hearst Avenue and a second monitoring station located in Centennial Drive. The volume and quality of effluent at both monitoring stations is monitored and evaluated for compliance with EBMUD discharge requirements. From these monitoring stations, the discharge continues down into the City's sewer system to be transported to EBMUD's north interceptor sewer and then to the wastewater treatment facility in Oakland. Sanitary sewer sub-basin 17-503, which receives flows from the sewer main in Centennial Drive (and other areas of Berkeley and Oakland), is constrained around Dwight Avenue during peak wet weather conditions.

Storm Drainage: The LBNL storm drain system is a gravity-fed system of open and culverted drainages that generally run east-west. The combined flows are then conveyed through the developed portions of the site to eventually discharge via outfalls into the open channels of the Strawberry Creek watershed.

Solid Waste: Non-hazardous solid waste is collected and transported off-site by a commercial waste contractor. The Lab implements an extensive program focused on waste minimization and recycling.

Electricity: The Lab purchases electricity from the Western Area Power Administration. Electricity is delivered to the Lab's Grizzly Peak Substation via the PG&E transmission system. The total electrical power consumption in 2003 at LBNL was 74,500 megawatt hours. The Lab also has a number of stationary and portable emergency power generators that are powered by diesel, gasoline or natural gas.

Natural Gas: Natural gas is used at the Lab for heating all buildings, to operate certain equipment, and in some experimental uses. Natural gas is delivered to the site by the PG&E system via a 6-inch line. The point of delivery is located above Cyclotron Road and below Building 88. Natural gas is distributed from this point of delivery to all buildings at the Lab. Only two buildings (Buildings 73 and 73A) in the eastern portion of the Lab are served by another PG&E line located along Centennial Drive.

Other On-Site Utilities: The Lab also owns and operates other specialized utility systems that are needed for the research and specific equipment used on site. These include a Lab-wide compressed air

system, a Lab-wide low conductivity water system, a closed loop cooling water system, building-specific purified water systems, and building-specific de-ionized water systems.

Project Site

All of the utilities that would be needed for the proposed project are available in the vicinity of the project site. The proposed project would require water facilities, including piping and pumps for the cooling towers and the building itself. The project would extend a water supply line from the existing main in Cyclotron Road to the building. Sanitary sewer lines would be extended to connection points to be determined based on the requirements of LRDP Mitigation Measure UTILS-2. Storm water drainage lines would be extended along existing roadways to connection points in Centennial Drive.

6.16.2 2006 LRDP EIR Analysis

Impacts on utilities and service systems from Lab growth under the 2006 LRDP through 2025 are evaluated in Section IV.M of the 2006 LRDP EIR. The EIR analysis concluded that implementation of the 2006 LRDP would result in impacts on utilities that would either be less than significant or reduced to a less than significant level with the proposed mitigation measures.

The proposed project is within the scope of development analyzed in the 2006 LRDP EIR. Relevant mitigation measures in the 2006 LRDP EIR have been incorporated into the proposed project planning and design and will be implemented during project operations consistent with LRDP or project-specific mitigation monitoring requirements.

6.16.3 Environmental Checklist and Discussion

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
UTILITIES AND SERVICE SYSTEMS - Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☒	☐	☐	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☒	☐	☐	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☒	☐	☐	☐

	Potentially Significant Impact	Less than Significant with Project Mitigation	Less than Significant Impact	No Impact
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new and expanded entitlements needed?	☐	☐	☒	☐
e) Result in the need for increased chilled water or steam generation capacity or major distribution improvements?	☐	☐	☐	☒
f) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☒	☐	☐	☐
g) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
h) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐
i) Require or result in the construction or expansion of electrical, or natural gas which would cause significant environmental impacts.	☒	☐	☐	☐
i) Require or result in the construction or expansion of telecommunication facilities, which would cause significant environmental impacts.	☐	☐	☐	☒

DISCUSSION:

a.,b.,f. **Potentially Significant Impact.** The increase in space and population associated with the CRT project is within the levels of growth analyzed in the 2006 LRDP EIR and therefore the demand for sewer capacity attributable to the proposed project would be within the scope of the 2006 LRDP analysis. As discussed in the 2006 LRDP EIR, LBNL currently contributes sanitary sewer flows to sub-basin 17-503 that exceed capacity during the wet season (LRDP Impact UTILS-2). Mitigation measures identified for this impact include directing wastewater flows to non-constrained sanitary sewer lines (LRDP Mitigation Measure UTILS-2). Wastewater from the CRT project would be directed into another sub-basin that is not constrained under current conditions. Although the impact associated with wastewater has been adequately addressed in the 2006 LRDP EIR, the project-specific impact will be discussed in the CRT project EIR.

c. **Potentially Significant Impact.** According to the 2006 LRDP EIR, existing LBNL storm water drainage facilities have adequate capacity to serve existing and future development in the area. Although

development of the project would increase the amount of impervious surfaces on the project site, the project would include design features to maintain storm water runoff at existing levels. Project-specific impacts related to drainage will be discussed in the CRT project EIR.

d. **Less Than Significant Impact.** Construction of the new building, associated cooling towers, and the presence of additional staff and students associated with the proposed project would increase the potential demand for water. The 2006 LRDP EIR concluded that implementation of the 2006 LRDP would generate an estimated water demand of approximately 56.5 million gallons per year (see Impact UTILS-1). This represents an increase of about 36 percent, or 14.9 million gallons. Of this total increase, the annual demand for water by employees would increase by approximately 27 percent and the demand for process water would increase by about 45 percent for LBNL.

Pursuant to Sections 10910-10915 (SB 610) of the California Water Code, LBNL submitted a request to EBMUD to prepare a water supply assessment (WSA) for the 2006 LRDP project. EBMUD submitted a WSA to LBNL in a letter dated November 23, 2004. On February 23, 2006 EBMUD confirmed that the 2006 LRDP's estimated water demand is accounted for in EBMUD's water demand projections, as published in the 2000 Urban Water Management Plan. The 2006 LRDP would not change EBMUD's 2020 water demand projection, nor would it result in a new significant increase in water use beyond what EBMUD has projected for the region. Therefore, the 2006 LRDP would not result in the need for new or expanded water entitlements.

Furthermore, new buildings constructed under the 2006 LRDP would install water conservation devices such as low-flow plumbing fixtures and water-saving appliances; other devices and new technology (e.g., drip irrigation, re-circulating cooling systems, etc.) would be employed where practicable to further water conservation. Additionally, landscaping introduced to the project site as a result of the 2006 LRDP would include drought-tolerant plant materials with a long-term goal to wean the majority of the plant materials off the irrigation system and allow them to naturalize. The 2006 LRDP also includes various system upgrades intended to improve reliability and reduce water loss due to outdated, deteriorating pipelines. Improvements include the replacement of selected existing water distribution lines.

The on-site water delivery system at LBNL and connection to off-site pipes are sized for firefighting, which requires roughly 20 times larger capacity than the infrastructure necessary for water delivery for daily use. Thus, existing infrastructure is adequate for future development and redevelopment under the 2006 LRDP.[3] Based on the discussion above, the 2006 LRDP EIR concluded that implementation of the 2006 LRDP would generate a less-than-significant impact with respect to demand for water services and would not result in the need for new or upgraded water treatment facilities.

The proposed project is within the levels of development analyzed in the 2006 LRDP EIR. Therefore, impacts of the proposed project on water facilities would be less than significant. No conditions have changed and no new information has become available since the certification of the 2006 LRDP EIR that would alter this previous analysis. Therefore, no further analysis of this impact is required.

3 Normal water use at LBNL, including cooling tower use, ranges from 10 gpm to a peak of 167 gpm. LBNL has conducted fire hydrant testing on a biannual basis to determine the available water supply capacity. The flow test usually consisted of two hydrants flowing simultaneously with an average of 1,800 gpm flow from one hydrant. The total flow from two hydrants is 3,600 gpm. Hence the 20 times larger capacity is being maintained.

Cumulative Impacts

The 2006 LRDP EIR analyzed the cumulative impact on utilities under LRDP Impact UTILS-6. According to that analysis, other foreseeable development in the City of Berkeley and in the LBNL area surrounding the Lab site would contribute to cumulative increases in utility and energy demand; however, new development would occur within a largely built-out urban area where utilities and service systems generally are provided. Additionally, these increases in demand attributed to other development would be addressed on a site-by-site basis by the service providers prior to approval of new development, and through CEQA review of each development project. The incremental increase in demand for utilities for storm water delivery systems, water supply, and solid waste associated with the 2006 LRDP would not be expected to represent a substantial increase in demand for utility and service systems, and existing utility delivery systems would be expected to handle growth anticipated under the 2006 LRDP. Therefore, the effect of 2006 LRDP development in combination with other foreseeable development would not be significant, nor would the LRDP development's contribution to any cumulative effects be cumulatively considerable. Because the proposed project is within the 2006 LRDP scope of development, the proposed project contribution to any cumulative impacts would also not be considerable.

e., i. **Potentially Significant Impact.** The proposed project would result in the need for increased chilled water for space cooling purposes, and equipment to produce chilled water is included in the proposed project and will be evaluated for potential environmental impacts in the CRT project EIR.

Impact UTILS-5 in the 2006 LRDP EIR addresses the additional demand for electricity and natural gas under the 2006 LRDP. According to the 2006 LRDP EIR analysis, implementation of the 2006 LRDP would increase the demand for both electricity and natural gas by 154,380 MWh per year and about 748,098 Therms per year, respectively. The projected annual demand for electricity at the LRDP planning horizon is minimal (less than 0.08 percent) compared to total electricity use in the state of California, which was about 273 million MWh in 2002 (California Energy Commission, 2002). The projected demand for natural gas at LBNL is also minimal (0.02 percent), when compared to total natural gas consumption of about 12,769 million Therms in California in 2000 (California Energy Commission, 2000). Ongoing conservation efforts at Berkeley Lab include use of energy-efficient equipment, such as transformers and motors, variable frequency drives for on-demand power, and automatic climatic controls. Development under the 2006 LRDP would require specific utility connections for new buildings that would occur in existing developed areas, and would be incorporated with the construction or rehabilitation of new structures.

The project proposes the use of up to 17 megawatts for total power capacity and cooling capacity. The 2006 LRDP EIR concluded that the additional demand for electricity and natural gas would not result in the construction of new or expansion of existing energy production and/or transmission facilities. Although this impact is adequately addressed in the 2006 LRDP EIR and determined to be less than significant, a project-specific analysis will be included the CRT project EIR. The project EIR will also discuss impacts related to Global Climate Change.

g.-h. **Less Than Significant Impact.** The 2006 LRDP would result in an increased waste stream due to an increase in operations (additional personnel and building square feet). The increase in daily population with implementation of the 2006 LRDP would take place at the hill site. The increase translates into an average annual growth rate of approximately 1.1 percent. This would result in an increase in disposed waste from the existing estimate of about 413 tons per year to about 520 tons per year at buildout of the LRDP. The amount of recycled waste generated at LBNL would also increase from the existing annual

estimate of 1,592 tons to 2,006 tons. The proportion of recycled waste to disposed waste under buildout of the 2006 LRDP would remain at the existing ratio of roughly 4:1.

Currently, disposed waste from LBNL is transported to the Altamont Landfill. The Altamont Landfill has a permitted maximum daily disposal of 11,150 tons per day. Under existing conditions, LBNL disposed waste accounts for about 0.01 percent of the daily permitted disposal. Under the 2006 LRDP, the projected disposed waste would increase but would remain at roughly 0.01 percent of the daily permitted disposal. The Altamont Landfill has recently updated its conditional use permit, which allows for an additional capacity of approximately 40 million tons of disposal over the next 19 to 38 years (CIWMB 2007). Therefore, development at LBNL attributed to the 2006 LRDP would not cause any landfill to exceed its permitted capacity and would result in a less-than-significant impact. The proposed project is within the levels of development analyzed in the 2006 LRDP EIR. Therefore, impacts of the proposed project on solid waste facilities would be less than significant. No conditions have changed and no new information has become available since the certification of the 2006 LRDP EIR that would alter this previous analysis. Therefore, no further analysis of this impact is required.

Cumulative Impacts

See discussion under item d above.

j. **No impact**. The proposed project would not affect telecommunication facilities and no impact would occur. No further analysis of this impact is required.

	Potentially Significant Impact	Less than Significant with Project Mitigation	Impact for which 2006 LRDP EIR is Sufficient	Less than Significant Impact	No Impact
17. MANDATORY FINDINGS OF SIGNIFICANCE					
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or pre-history?	☒	☐	☐	☐	
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☒	☐	☐	☐	

	Potentially Significant Impact	Less than Significant with Project Mitigation	Impact for which 2006 LRDP EIR is Sufficient	Less than Significant Impact	No Impact
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐	

DISCUSSION:

a. **Potentially Significant Impact.** Implementation of the project has the potential to impact the environment. As noted in the checklist responses, the CRT project EIR will analyze and determine whether the project would substantially degrade the quality of the environment, with respect to biological resources.

b. **Potentially Significant Impact.** The project has the potential to contribute to cumulative impacts associated with the near-term traffic. All other cumulative impacts are adequately addressed in the 2006 LRDP EIR and further evaluation of cumulative impacts is not required.

c. **Potentially Significant Impact.** As discussed in this Initial Study, the project has the potential to directly or indirectly impact human beings via impacts on aesthetics and traffic. These are considered potentially significant impacts and will be discussed in the CRT project EIR.

8. SOURCES OF INFORMATION USED IN PREPARING INITIAL STUDY

1. California Integrated Waste Management Board, Solid Waste Information System, Accessed June 29, 2007.
2. Lawrence Berkeley National Laboratory, Long Range Development Plan Draft Environmental Impact Report, SCH No. 200102046, July 2007.

9. REPORT PREPARERS

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APPENDIX A

2006 LBNL LRDP EIR Mitigation Measures

2006 LBNL LRDP EIR MITIGATION MEASURES

LRDP VIS-4a: All new buildings on the LBNL hill site constructed pursuant to the 2006 LRDP shall incorporate design standards that ensure lighting would be designed to confine illumination to its specific site, in order to minimize light spillage to adjacent LBNL buildings and open space areas. Consistent with safety considerations, LBNL project buildings shall shield and orient light sources so that they are not directly visible from outside their immediate surroundings.

LRDP VIS-4b: New exterior lighting fixtures shall be compatible with existing lighting fixtures and installations in the vicinity of the new building, and will have an individual photocell. In general, and consistent with safety considerations, exterior lighting at building entrances, along walkways and streets, and at parking lots shall maintain an illumination level of not more than 20 Lux (approximately 2 foot-candles).

LRDP VIS-4c: All new buildings on the LBNL hill site constructed pursuant to the 2006 LRDP shall incorporate design standards that preclude or limit the use of reflective exterior wall materials or reflective glass, or the use of white surfaces for roofs, roads, and parking lots, except in specific instances when required for energy conservation.

LRDP AQ-1a: The BAAQMD's approach to dust abatement calls for "basic" control measures that should be implemented at all construction sites, "enhanced" control measures that should be implemented at construction sites greater than four acres in area, and "optional" control measures that should be implemented on a case-by-case basis at construction sites that are large in area or are located near sensitive receptors, or that, for any other reason, may warrant additional emissions reductions (BAAQMD, 1999).

During construction of individual projects proposed under the LRDP, LBNL shall require construction contractors to implement the appropriate level of mitigation (as detailed below), based on the size of the construction area, to maintain project construction-related impacts at acceptable levels; this would reduce the potential impact to a less-than-significant level.

Elements of the "basic" dust control program for project components that disturb less than one acre shall include the following at a minimum:

- Water all active construction areas at least twice daily. Watering should be sufficient to prevent airborne dust from leaving the site. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water should be used whenever possible.

- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer).

- Pave, apply water three times daily (or as sufficient to prevent dust from leaving the site), or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.

- Sweep daily or as appropriate (with water sweepers using reclaimed water if possible) all paved access roads, parking areas and staging areas at construction sites.

- Sweep streets daily or as appropriate (with water sweepers using reclaimed water if possible) if visible soil material is carried onto adjacent public streets.

Elements of the "enhanced" dust abatement program for project components that disturb four or more acres shall include all of the "basic" measures in addition to the following measures:

- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).

- Enclose, cover, water twice daily (or as sufficient to prevent dust from leaving the site), or apply (non-toxic) soil stabilizers to exposed stockpiles (dirt, sand, etc.).

- Limit traffic speeds on unpaved roads to 15 miles per hour.

- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.

- Replant vegetation in disturbed areas as quickly as possible.

Elements of the "optional" control measures are strongly encouraged at construction sites that are large in area or located near sensitive receptors, or that for any other reason may warrant additional emissions reductions:

- Install wheel washers for all exiting trucks, or wash off tires or tracks of all trucks and equipment leaving the site.

- Install wind breaks, or plant trees/vegetative wind breaks at windward side(s) of construction areas.

- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 miles per hour.

- Limit the area subject to excavation, grading, and other construction activity at any one time.

- Pave all roadways, driveways, sidewalks, etc. as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.

- Designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust off-site. Their duties shall include holidays and weekend

periods when work may not be in progress. The names and telephone numbers of such persons shall be provided to the BAAQMD prior to the start of construction.

LRDP AQ-1b: To mitigate equipment exhaust emissions, LBNL shall require its construction contractors to comply with the following measures:

- Construction equipment shall be properly tuned and maintained in accordance with manufacturers' specifications.
- Best management construction practices shall be used to avoid unnecessary emissions (e.g., trucks and vehicles in loading and unloading queues would turn their engines off when not in use).
- Any stationary motor sources such as generators and compressors located within 100 feet of a sensitive receptor shall be equipped with a supplementary exhaust pollution control system as required by the BAAQMD and the California Air Resources Board.
- Incorporate use of low-NOx emitting, low-particulate emitting, or alternatively fueled construction equipment into the construction equipment fleet where feasible, especially when operating near sensitive receptors.
- Reduce construction-worker trips with ride-sharing or alternative modes of transportation.

LRDP AQ-4a: To avoid the single location where implementation of the 2006 LRDP would result in an increase in health risk in excess of the 10-in-one-million threshold, LBNL shall adjust, prior to the construction of parking structure PS-1 (or similarly configured building), the exhaust system of the existing generator near Building 90 to reduce or eliminate the restriction on upward exhaust flow caused by the existing rain cap. For example, modeling indicates that removal of the rain cap would reduce the risk caused by construction of parking structure PS-1 in proximity to the existing generator to a level below 10 in one million. The Lab could install a hinged rain cap, which would prevent moisture infiltration into the generator but still allow unobstructed exhaust flow and would avoid the significant impact identified in the health risk assessment.

Because most of the cancer risk from TACs is due to diesel particulate, measures to reduce the risk (beyond regulations already in place that will substantially reduce diesel particulate emissions in the next 20 years) would include those measures that could reduce vehicular travel to and from Berkeley Lab. Implementation of Mitigation Measure TRANS-1c, development and implementation of a new Transportation Demand Management Program (see Section IV.L, Transportation/Traffic), would result in a concomitant increase in vehicular emissions, including those of TACs. However, even with implementation of this measure, Berkeley Lab, as a major employer and thus a substantial source of vehicular traffic, would likely continue to contribute to Bay Area-wide emissions of TACs for the foreseeable future.

LRDP BIO-2a: Future development under the 2006 LRDP shall avoid, to the extent feasible, the fill of potentially jurisdictional waters. Therefore, during the design phase of any future development project that may affect potentially jurisdictional waters, a preliminary evaluation of the project site shall be made by a qualified biologist to determine if the site is proximate to potentially jurisdictional waters and, if deemed necessary by the biologist, a wetlands delineation shall be prepared and submitted to the Corps for verification.

Most development projected under the 2006 LRDP would have no potential for impacts on jurisdictional waters. However, development in specific locations including Buildings S-1 and S-9 S-2 and S-0, as well as Parking Structures and Lots PS-1 and PL-9 and Roads R-2 and R-5, could require fill of or create the potential for accidental discharges to jurisdictional waters. It should be noted that the preferable form of mitigation recommended by the Corps is avoidance of jurisdictional waters. To the extent practicable, new development under the 2006 LRDP shall be located so as to avoid the fill of jurisdictional waters.

LRDP BIO-2b: Any unavoidable loss of jurisdictional waters shall be compensated for through the development and implementation of a project-specific Wetlands Mitigation Plan.

In the event that potential impacts to streams resulting from a 2006 LRDP development project are identified, compensation for loss of jurisdictional waters would be based on the Corps-verified wetlands delineation identified in Mitigation Measure BIO-2.a. During the permit application process for specific development project(s) with identified impacts on jurisdictional drainages or wetlands, LBNL would consult with the Corps, CDFG, and Regional Water Quality Control Board regarding the most appropriate assessment and mitigation methods to adequately address losses to wetland function that could occur as a result of the development project(s). A project-specific wetland mitigation plan would be developed prior to project implementation and submitted to permitting agencies for their approval. The plan may include one or more of the following mitigation options: restoration, rehabilitation, or enhancement of drainages and wetlands in on-site areas that remain unaffected by grading and project development or off-site at one or more suitable locations within the project region; creation of on-site or off-site drainages or wetlands at a minimum of a 1:1 functional equivalency or acreage ratio (as verified by the Corps); purchase of credits in an authorized mitigation bank acceptable to the Corps and CDFG; contributions in support of restoration and enhancement programs located within the project region (such as those operated by local non-profit organizations including the Friends of Strawberry Creek, the Urban Creeks Council, or the Waterways Restoration Institute); or other options approved by the appropriate regulatory agency at the time of the specific project approval.

All mitigation work proposed in existing wetlands or drainages on- or off-site shall be authorized by applicable permits.

LRDP BIO-2c: To the extent feasible, construction projects that might affect jurisdictional drainages and/or wetlands could be scheduled for dry-weather months. Avoiding ground-disturbing activities during the rainy season would further decrease the potential risk of construction-related discharges to jurisdictional waters.

LRDP BIO-3: Direct disturbance, including tree and shrub removal or nest destruction by any other means, or indirect disturbance (e.g., noise, increased human activity in area) of active nests of raptors and other special-status bird species (as listed in Table IV.C 1) within or in the vicinity of the proposed footprint of a future development project shall be avoided in accordance with the following procedures for Pre-Construction Special-Status Avian Surveys and Subsequent Actions. No more than two weeks in advance of any tree or shrub removal or demolition or construction activity involving particularly noisy or intrusive activities (such as concrete breaking) that will commence during the breeding season (February 1 through July 31), a qualified wildlife biologist shall conduct pre-construction surveys of all potential special-status bird nesting habitat in the vicinity of the planned activity and, depending on the survey findings, the following actions shall be taken to avoid potential adverse effects on nesting special-status nesting birds:

1. Pre-construction surveys are not required for demolition or construction activities scheduled to occur during the non-breeding season (August 1 through January 31).

2. If pre-construction surveys indicate that no nests of special-status birds are present or that nests are inactive or potential habitat is unoccupied, no further mitigation is required.

3. If active nests of special-status birds are found during the surveys, a no-disturbance buffer zone will be created around active nests during the breeding season or until a qualified biologist determines that all young have fledged. The size of the buffer zones and types of construction activities restricted within them will be determined through consultation with the CDFG, taking into account factors such as the following:

    a. Noise and human disturbance levels at the project site and the nesting site at the time of the survey and the noise and disturbance expected during the construction activity;

    b. Distance and amount of vegetation or other screening between the project site and the nest; and

    c. Sensitivity of individual nesting species and behaviors of the nesting birds.

4. Noisy demolition or construction activities as described above (or activities producing similar substantial increases in noise and activity levels in the vicinity) commencing during the non-breeding season and continuing into the breeding season do not require surveys (as it is assumed that any breeding birds taking up nests would be acclimated to project-related activities already under way). However, if trees and shrubs are to be removed during the breeding season, the trees and shrubs will be surveyed for nests prior to their removal, according to the survey and protective action guidelines 3a through 3c, above.

5. Nests initiated during demolition or construction activities would be presumed to be unaffected by the activity, and a buffer zone around such nests would not be necessary.

6. Destruction of active nests of special-status birds and overt interference with nesting activities of special-status birds shall be prohibited.

7. The noise control procedures for maximum noise, equipment, and operations identified in Section IV.I, Noise, of this EIR shall be implemented.

LRDP BIO-4: Project implementation under the 2006 LRDP shall avoid disturbance to the maternity roosts of special-status bats during the breeding season in accordance with the following procedures for Pre-Construction Special-Status Bat Surveys and Subsequent Actions. No more than two weeks in advance of any demolition or construction activity involving concrete breaking or similarly noisy or intrusive activities, that would commence during the breeding season (March 1 through August 31), a qualified bat biologist, acceptable to the CDFG, shall conduct pre-demolition surveys of all potential special-status bat breeding habitat in the vicinity of the planned activity. Depending on the survey findings, the following actions shall be taken to avoid potential adverse effects on breeding special-status bats:

1. If active roosts are identified during pre-construction surveys, a no-disturbance buffer will be created by the qualified bat biologist, in consultation with the CDFG, around active roosts during the breeding season. The size of the buffer will take into account factors such as the following:

    a. Noise and human disturbance levels at the project site and the roost site at the time of the survey and the noise and disturbance expected during the construction activity;

    b. Distance and amount of vegetation or other screening between the project site and the roost; and

c. Sensitivity of individual nesting species and the behaviors of the bats.

2. If pre-construction surveys indicate that no roosts of special-status bats are present, or that roosts are inactive or potential habitat is unoccupied, no further mitigation is required.

3. Pre-construction surveys are not required for demolition or construction activities scheduled to occur during the non-breeding season (September 1 through February 28).

4. Noisy demolition or construction activities as described above (or activities producing similar substantial increases in noise and activity levels in the vicinity) commencing during the non-breeding season and continuing into the breeding season do not require surveys (as it is assumed that any bats taking up roosts would be acclimated to project-related activities already under way). However, if trees are to be removed during the breeding season, the trees would be surveyed for roosts prior to their removal, according to the survey and protective action guidelines 1a through 1c, above.

5. Bat roosts initiated during demolition or construction activities are presumed to be unaffected by the activity, and a buffer is not necessary.

6. Destruction of roosts of special-status bats and overt interference with roosting activities of special-status bats shall be prohibited.

7. The noise control procedures for maximum noise, equipment, and operations identified in Section IV.I, Noise, of this EIR shall be implemented.

LRDP BIO-5a: With the approval of the USFWS on a case-by-case basis, relocate any snake encountered during construction that is at risk of harassment; cease construction activity until the snake is moved to suitable refugium. Alternatively, submit a general protocol for relocation to the USFWS for approval prior to project implementation.

LRDP BIO-5b: Conduct focused pre-construction surveys for the Alameda whipsnake at all project sites within or directly adjacent to areas mapped as having high potential for whipsnake occurrence. Project sites within high potential areas shall be fenced to exclude snakes prior to project implementation. This would not include ongoing and non-site specific activities such as fuel management.

Methods for pre-construction surveys, burrow excavation, and site fencing shall be developed prior to implementation of any project located within or adjacent to areas mapped as having high potential for whipsnake occurrence. Such methods would be developed in consultation or with approval of USFWS for any development taking place in USFWS officially designated Alameda whipsnake critical habitat.

Pre-construction surveys of such project sites shall be carried out by a permitted biologist familiar with whipsnake identification and ecology (Swaim, 2002). These are not intended to be protocol-level surveys but designed to clear an area so that individual whipsnakes are not present within a given area prior to initiation of construction. At sites where the project footprint would not be contained entirely within an existing developed area footprint and natural vegetated areas would be disturbed any existing animal burrows shall be carefully hand-excavated to ensure that there are no whipsnakes within the project footprint. Any whipsnakes found during these surveys shall be relocated according to the Alameda Whipsnake Relocation Plan. Snakes of any other species found during these surveys shall also be relocated out of the project area. Once the site is cleared it shall then be fenced in such a way as to exclude snakes for the duration of the project. Fencing shall be maintained intact throughout the duration of the project.

LRDP BIO-5c: (1) A full-time designated monitor shall be employed at project sites that are within or directly adjacent to areas designated as having high potential for whipsnake occurrence, or (2) Daily site surveys for Alameda whipsnake shall be carried out by a designated monitor at construction sites within or adjacent to areas designated as having moderate potential for whipsnake occurrence.

Each morning, prior to initiating excavation, construction, or vehicle operation at sites identified as having moderate potential for whipsnake occurrence, the project area of applicable construction sites shall be surveyed by a designated monitor trained in Alameda whipsnake identification to ensure that no Alameda whipsnakes are present. This survey is not intended to be a protocol-level survey. All laydown and deposition areas, as well as other areas that might conceal or shelter snakes or other animals, shall be inspected each morning by the designated monitor to ensure that Alameda whipsnakes are not present. At sites in high potential areas the monitor shall remain on-site during construction hours. At sites in moderate potential areas the monitor shall remain on-call during construction hours in the event that a snake is found on-site. The designated monitor shall have the authority to halt construction activities in the event that a whipsnake is found within the construction footprint until such time as threatening activities can be eliminated in the vicinity of the snake and it can be removed from the site by a biologist permitted to handle Alameda whipsnakes. The USFWS shall be notified within 24 hours of any such event.

LRDP BIO-5d: Alameda whipsnake awareness and relevant environmental sensitivity training for each worker shall be conducted by the designated monitor prior to commencement of on-site activities. All on-site workers at applicable construction sites shall attend an Alameda whipsnake information session conducted by the designated monitor prior to beginning work. This session shall cover identification of the species and procedures to be followed if an individual is found on-site, as well as basic site rules meant to protect biological resources, such as speed limits and daily trash pickup.

LRDP BIO-5e: Hours of operation and speed limits shall be instituted and posted. All construction activities that take place on the ground (as opposed to within buildings) at applicable construction sites shall be performed during daylight hours, or with suitable lighting so that snakes can be seen. Vehicle speed on the construction site shall not exceed 5 miles per hour.

LRDP BIO-5f: Site vegetation management shall take place prior to tree removal, grading, excavation, or other construction activities. Construction materials, soil, construction debris, or other material shall be deposited only on areas where vegetation has been mowed.

Areas where development is proposed under the 2006 LRDP are subject to annual vegetation management involving the close-cropping of all grasses and ground covers; this management activity would be performed prior to initiating project-specific construction. Areas would be re-mowed if grass or other vegetation on the project site becomes high enough to conceal whipsnakes during the construction period. In areas not subject to annual vegetation management, dense vegetation would be removed prior to the onset of grading or the use of any heavy machinery, using goats, manual brush cutters, or a combination thereof.

LRDP BIO-6a: Floristic surveys for special-status plants shall be conducted at specific project sites where suitable habitat is present. Floristic surveys shall also be conducted in designated Perimeter Open Space. All occurrences of special-status plant populations, if any, shall be mapped.

Although no special-status plants have been observed at LBNL during past biological resource surveys, the distribution and size of plant populations often vary from year to year, depending on climatic conditions. Therefore, a baseline survey of all non-developed areas, including the designated Perimeter Open Space areas, where there is potential for future development or vegetation management activities, should be conducted in accordance with USFWS and CDFG guidelines by a qualified botanist during the period of identification for all special-status plants. During this initial survey, any special-status plant populations found, as well as areas with high potential for supporting special-status plants (i.e., less disturbed areas, rock outcrops and other areas of thin soils, areas supporting a relatively high proportion of native plant species) would be identified and mapped. Thereafter, surveys of Perimeter Open Space areas where ongoing vegetation management (i.e., active vegetation removal to minimize potential wildland fire damage to facilities and personnel) activities would be undertaken, and that are mapped as supporting or having potential to support special-status plant species, would be conducted in April and June every five years.

In those proposed LRDP development sites where suitable habitat is present for special-status species identified as having a moderate to high potential for occurrence (see Table IV.C 1, p. IV.C-10), protocol-

level rare plant surveys would be conducted prior to construction. Surveys should be conducted during the periods of identification for all species under consideration at each applicable development site, the timing and scope to be directed by a qualified botanist. During the initial survey, any special-status plant populations found, as well as all areas with high potential for supporting special-status plants (i.e. less disturbed areas, rock outcrops and other areas of thin soils, areas supporting a relatively high proportion of native plant species), would be identified and mapped.

LRDP BIO-6b: Seeds or cuttings shall be collected from sensitive plant species found within developable areas and open space and at risk of being any adversely affected, or sensitive plants found in these areas shall be transplanted.

If special-status plants are found during floristic surveys and are at risk of being adversely affected, a qualified botanist working in conjunction with an expert in native plant horticulture, CNPS, and CDFG, would collect seeds, bulbs, and cuttings for propagation and planting in specific project revegetation efforts as well as restoration of native habitat within designated Open Space. Perennial species could be transplanted, if found in undeveloped locations that have a high likelihood for future development. Due to its unreliability, translocation alone should not be relied upon as a sole means of mitigation; however, healthy individuals of any special-status plant species should be transplanted to areas of suitable habitat that are protected in perpetuity. The relocation sites may be located either on or off the LBNL hill site. If the areas for transplanting are located off-site, they should be within a 20-mile radius of the project site. Plants should be relocated to areas with ecological conditions (slope, aspect, microclimate, soil moisture, etc.) as similar to those in which they were found as possible. Existing plants could also be held in containers for specific post-project revegetation efforts on-site.

LRDP CUL-1: Mitigation for the demolition or substantial physical alteration of Buildings 71 and 88, and other historical buildings and structures at LBNL found to be significant historical resources at the completion of the ongoing surveys and research, shall include the development of a Memorandum of Agreement (MOA) among the Department of Energy, the State Historic Preservation Officer, and the Advisory Council on Historic Preservation. Full implementation of the MOA's stipulations shall also be required as part of this mitigation measure.

LRDP CUL-3: If an archaeological artifact is discovered on-site during construction under the proposed LRDP, all activities within a 50-foot radius shall be halted and a qualified archaeologist shall be summoned within 24 hours to inspect the site. If the find is determined to be significant and to merit formal recording or data collection, adequate time and funding shall be devoted to salvage the material. Any archaeologically important data recovered during monitoring shall be cleaned, catalogued, and analyzed, with the results presented in a report of finding that meets professional standards.

LRDP CUL-4: In the event that human skeletal remains are uncovered during construction or ground-breaking activities resulting from implementation of the 2006 LRDP at the LBNL site, CEQA Guidelines Section 15064.5(e)(1) shall be followed:

- In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the following steps should be taken:

(1) There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

(A) The coroner of the county in which the remains are discovered must be contacted to determine that no investigation of the cause of death is required, and

(B) If the coroner determines the remains to be Native American: (1) The coroner shall contact the Native American Heritage Commission within 24 hours. (2) The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descended from the deceased Native American. (3) The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98, or

(2) Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance.

(A) The Native American Heritage Commission is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 24 hours after being notified by the commission;

(B) The descendant identified fails to make a recommendation; or

(C) The landowner or his authorized representative rejects the recommendation of the descendant, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.

LRDP GEO-1: Seismic emergency response and evacuation plans shall be prepared for each new project at LBNL that is developed pursuant to the 2006 LRDP. These plans shall incorporate potential

inaccessibility of the Blackberry Canyon entrance and identify alternative ingress and egress routes for emergency vehicles and facility employees in the event of roadway failure from surface fault rupture.

LRDP GEO-2: A site-specific, design-level geotechnical investigation shall occur during the design phase of each LBNL building project, and prior to approval of new building construction within the LBNL hill site. This investigation shall be conducted by a licensed geotechnical engineer and include a seismic evaluation of potential maximum ground motion at the site. Geotechnical investigations for sites within either a Seismic Hazard Zone for landslides or an area of historic landslide activity at LBNL, as depicted on Figures IV.E-2 and IV.E-3, or newly recognized areas of slope instability at the inception of project planning, shall incorporate a landslide analysis in accordance with CGS Publication 117. Geotechnical recommendations shall subsequently be incorporated into building design.

Earthquakes and groundshaking in the Bay Area are unavoidable and may occur at some time during the period covered by the LRDP. Although some structural damage is typically not avoidable, building codes and local construction requirements have been established to protect against building collapse and to minimize injury during a seismic event. Considering that the future individual buildings would be constructed in conformance with the California Building Code, LBNL requirements, federal regulations and guidelines, and Mitigation Measure GEO-2, the risks of injury and structural damage from groundshaking and earthquake-induced landsliding would be reduced and the impacts, therefore, would be considered less than significant.

Furthermore, as described in the Project Description, some of the buildings constructed pursuant to the LRDP would be occupied by staff relocated from other, older LBNL facilities, some of which were constructed in accordance with less stringent building code requirements than those that would apply to future construction. As of 2003, 14 percent of LBNL buildings were over 60 years old. Many of these buildings were constructed as temporary structures that were never replaced. The LRDP specifically proposes the demolition of some30 outdated buildings that together include approximately 250,000 square feet. In this regard, implementation of the LRDP would result in a beneficial seismic safety impact.

LRDP GEO-3a: Construction under the LRDP shall be required to use construction best management practices and standards to control and reduce erosion. These measures could include, but are not limited to, restricting grading to the dry season, protecting all finished graded slopes from erosion using such techniques as erosion control matting and hydroseeding or other suitable measures.

LRDP GEO-3b: Revegetation of areas disturbed by construction activities, including slope stabilization sites, using native shrubs, trees, and grasses, shall be included as part of all new projects.

Compliance with California Building Code standards and compliance with Mitigation Measures GEO-2, GEO-3a, and GEO-3b would reduce potential impacts associated with expansive soils and soil erosion to a less-than-significant level.

None required for cumulative impacts, although Mitigation Measures GEO-1, GEO 2, GEO-3a, and GEO-3b would be implemented, as identified above.

LRDP HAZ-3a: LBNL shall continue to prepare an annual self-assessment summary report and a Site Environmental Report that summarize environment, health, and safety program performance and identify any areas where LBNL is not in compliance with environmental laws and regulations governing hazardous materials, and worker safety, emergency response, and environmental protection.

An EH&S assessment of LBNL activities is performed annually, and these results are reported annually in the LBNL Self-Assessment Report.

In addition, LBNL prepares an annual Site Environmental Report that describes the environmental activities noted above. Implementation of this measure would ensure that the information in the LBNL Self-Assessment and Site Environmental Reports continues to be collected, reviewed, and provided.

LRDP HAZ-3b: Prior to shipping hazardous materials to a hazardous waste treatment, storage, or disposal facility, LBNL shall confirm that the facility is licensed to receive the type of waste LBNL is proposing to ship.

LBNL is required by DOE Order 435.1 to verify that the receiving facility has all appropriate licenses and that the waste meets all waste acceptance criteria of the receiving facility.

LRDP HAZ-3c: LBNL shall require hazardous waste haulers to provide evidence that they are appropriately licensed to transport the type of wastes being shipped from LBNL.

Shipping procedures at LBNL require all transporters of hazardous, radioactive, and mixed waste to provide evidence that they are appropriately licensed.

LRDP HAZ-3d: LBNL shall continue its waste minimization programs and strive to identify new and innovative methods to minimize hazardous waste generated by LBNL activities.

Each LBNL Division is required to identify and implement new waste minimization activities each year. The waste minimization program at LBNL reduced hazardous waste by 72% during the period 1993-2004

LRDP HAZ-3e: In addition to implementing the numerous employee communication and training requirements included in regulatory programs, LBNL shall undertake the following additional measures as ongoing reminders to workers of health and safety requirements:

- Continue to post phone numbers of LBNL EH&S subject matter experts on the EH&S website.
- Continue to post Emergency Response and Evacuation Plans in all LBNL buildings.
- Continue to post sinks, in areas where hazardous materials are handled, with signs reminding users that hazardous materials and wastes cannot be poured down the drain.
- Continue to post dumpsters and central trash collection areas where hazardous materials are handled with signs reminding users that hazardous wastes cannot be disposed of as trash.

LRDP HAZ-3f: LBNL shall update its emergency preparedness and response program on an annual basis and shall provide copies of this program to local emergency response agencies and to members of the public upon request.

LRDP NOISE-1a: To reduce daytime noise impacts due to construction/demolition, LBNL shall require construction/demolition contractors to implement noise reduction measures appropriate for the project being undertaken. Measures that might be implemented could include, but not be limited to, the following:

- Construction/demolition activities would be limited to a schedule that minimizes disruption to uses surrounding the project site as much as possible. Such activities would be limited to the hours designated in the Berkeley and/or Oakland noise ordinance(s), as applicable to the location of the project. This would eliminate or substantially reduce noise impacts during the more noise-sensitive nighttime hours and on days when construction noise might be more disturbing.
- To the maximum extent feasible, equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds, wherever feasible).
- Stationary noise sources shall be located as far from adjacent receptors as possible.
- At locations where noise may affect neighboring residential uses, LBNL will develop a comprehensive construction noise control specification to implement construction/demolition noise controls, such as noise attenuation barriers, siting of construction laydown and vehicle staging areas, and community outreach, as appropriate to specific projects. The specification will include such information as general provisions, definitions, submittal requirements, construction limitations, requirements for noise and vibration monitoring and control plans, noise control materials and methods. This document will be modified as appropriate for a particular construction project and included within the construction specification.

LRDP NOISE-1b: For each subsequent project pursuant to the LRDP that would involve construction and/or demolition activities, LBNL shall engage a qualified noise consultant to determine whether, based on the location of the site and the activities proposed, construction/demolition noise levels could approach the property-line receiving noise standards of the cities of Berkeley or Oakland (as applicable). If the consultant determines that the standards would not be exceeded, no further mitigation is required. If the standards would be reached or exceeded absent further mitigation, one or more of the following additional measures would be required, as determined necessary by the noise consultant:

- Stationary noise sources shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or other measures to the extent feasible.

- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever feasible.

- Noise from idling trucks shall be kept to a minimum. No trucks shall be permitted to idle for more than 10 minutes if waiting within 100 feet of a residential area.

- If determined necessary by the noise consultant, a set of site-specific noise attenuation measures shall be developed before construction begins; possible measures might include erection of temporary noise barriers around the construction site, use of noise control blankets on structures being erected to reduce noise emission from the site, evaluation of the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings, and monitoring the effectiveness of noise attenuation measures by taking noise measurements.

- If determined necessary by the noise consultant, at least two weeks prior to the start of excavation, LBNL or its contractor shall provide written notification to all neighbors within 500 feet of the construction site. The notification shall indicate the estimated duration and completion date of the construction, construction hours, and necessary contact information for potential complaints about construction noise (i.e., name, telephone number, and address of party responsible for construction). The notice shall indicate that noise complaints resulting from construction can be directed to the contact person identified in the notice. The name and phone number of the contact person also shall be posted outside the LBNL boundaries.

LRDP NOISE-4: Mechanical equipment shall be selected and building designs prepared for all future development projects pursuant to the 2006 LRDP so that noise levels from future building and other facility operations would not exceed the Noise Ordinance limits of the cities of Berkeley or Oakland for commercial areas or residential zones as measured on any commercial or residential property in the area surrounding the future LRDP project. Controls that would typically be incorporated to attain adequate noise reduction would include selection of quiet equipment, sound attenuators on fans, sound attenuator

packages for cooling towers and emergency generators, acoustical screen walls, and equipment enclosures.

Implementation of Mitigation Measures NOISE-1a and NOISE-1b would reduce the cumulative impact of construction noise to the maximum extent feasible. However, for purposes of a conservative analysis, the cumulative effect of construction noise is considered significant and unavoidable.

LRDP TRANS-1a: LBNL shall work with UC Berkeley and the City of Berkeley to design and install a signal at the Gayley Road/Stadium Rim Way intersection, when a signal warrant analysis shows that the signal is needed. The intersection would meet one hour signal warrants for peak-hour volume and peak hour delay under 2025 conditions with implementation of the LBNL 2006 LRDP. LBNL shall contribute funding on a fair-share basis, to be determined in consultation with UC Berkeley and the City of Berkeley, for a periodic (annual or biennial) signal warrant check to allow the City to determine when a signal is warranted, and for installation of the signal. Should the City determine that alternative mitigation strategies may reduce or avoid the significant impact, the Lab shall work with the City and UC Berkeley to identify and implement such alternative feasible measure(s). See also Mitigation Measure TRANS-1c, development and implementation of a new Transportation Demand Management Program.

With the implementation of this mitigation measure, the intersection of Gayley Road/Stadium Rim Way would operate at an acceptable level of service (LOS B or better under traffic signal control) during both the a.m. and p.m. peak hours. Because LBNL could not implement this measure on its own, but would need the cooperation of UC Berkeley and/or the City of Berkeley, this impact would be considered significant and unavoidable.

This mitigation measure is proposed to be adopted as part of the LRDP and will be monitored through the LRDP mitigation monitoring and reporting program. It will thus continue to be a binding mitigation commitment of LBNL. Under CEQA case law, however, when the lead agency contributes fair share funding to a mitigation measure that will be carried out by another entity, there must be some evidence of a reasonable plan in place in order for the lead agency to conclude that the adopted mitigation will reduce the impact to a less than significant level (City of Marina v. Board of Trustees of the California State University (2006) 39 Cal.4th 341). LBNL has discussed this with the City, and based on that consultation, LBNL understands there have been some discussions of improvements at Gayley Road/Stadium Rim Way. Also, the University has retained a consultant to perform studies related to these improvements, but there is not yet a plan in place for the improvements. As such, it cannot be determined at this time that this impact will be mitigated to a less than significant level. Accordingly, this impact would still be considered significant and unavoidable, but LBNL would contribute to fair share

funding which, if a reasonable plan is implemented, would mitigate these impacts to a less than significant level.

LRDP TRANS-1b: LBNL shall work with the City of Berkeley to design and install a signal at the Durant Avenue/Piedmont Avenue intersection, when a signal warrant analysis shows that the signal is needed. LBNL shall contribute funding, on a fair-share basis, to be determined in consultation with UC Berkeley and the City of Berkeley, for a periodic (annual or biennial) signal warrant check to allow the City to determine when a signal is warranted, and for installation of the signal. Should the City determine that alternative mitigation strategies may reduce or avoid the significant impact, the Lab shall work with the City and UC Berkeley to identify and implement such alternative feasible measure(s). See also Mitigation Measure TRANS-1c, development and implementation of a new Transportation Demand Management Program.

With the implementation of this mitigation measure, the Durant Avenue/Piedmont Avenue intersection would operate at an acceptable level of service (LOS B or better under traffic signal control) during both the a.m. and p.m. peak hours. Because LBNL could not implement this measure on its own, but would need the cooperation of the City of Berkeley, this impact would be considered significant and unavoidable.

This mitigation measure is proposed to be adopted as part of the LRDP and will be monitored through the LRDP mitigation monitoring and reporting program. It will thus continue to be a binding mitigation commitment of LBNL. Under CEQA case law, however, when the lead agency contributes fair share funding to a mitigation measure that will be carried out by another entity, there must be some evidence of a reasonable plan in place in order for the lead agency to conclude that the adopted mitigation will reduce the impact to a less than significant level (City of Marina v. Board of Trustees of the California State University (2006) 39 Cal.4th 341). LBNL has discussed this with the City, and based on that consultation, LBNL understands there have been some discussions of improvements at Gayley Road/Stadium Rim Way. Also, the University has retained a consultant to perform studies related to these improvements, but there is not yet a plan in place for the improvements. As such, it cannot be determined at this time that this impact will be mitigated to a less than significant level. Accordingly, this impact would still be considered significant and unavoidable, but LBNL would contribute to fair share funding which, if a reasonable plan is implemented, would mitigate these impacts to a less than significant level.

LRDP TRANS-1c: LBNL shall fund and conduct a study to evaluate whether there may be feasible mitigation (with design standards acceptable to the City) at the intersection of Hearst Avenue at Gayley Road/La Loma Avenue. This intersection is currently signalized, and physical geometric limitations

constrain improvements within its current right-of-way. All four corners of this intersection are occupied by existing UC Berkeley facilities, including Foothill Student Housing, Cory Hall, and outdoor tennis courts, as well as the Founders' Rock. The LOS analyses herein used conservative assumptions so as to not underestimate potential project impacts. For example, even though the approach widths at this intersection allow drivers to maneuver past other vehicles as they near the intersection, the absence of pavement striping to delineate separate lanes dictated that the analysis conservatively assume all vehicle movements on each approach are made on a single lane. Similarly, without the certainty that standard lane widths (and adequate storage lengths) could be provided, possible improvement measures were not relied on to judge that significant impacts would be mitigated to less-than-significant levels. Judging the success of possible mitigation measures with a conservative standard is reasonable, but in consultation with City of Berkeley staff, the Lab will conduct a further study to re evaluate whether there may be feasible mitigation (with design standards acceptable to the City) at this intersection. That additional study will be conducted by the Lab as part of the TDM program set forth below as Mitigation Measure TRANS-1d. If such mitigation is determined by Berkeley Lab to be feasible, then Berkeley Lab shall contribute funding on a fair share basis, to be determined in consultation with UC Berkeley and the City of Berkeley, for the installation of the improvements.

This mitigation measure will be monitored through the LRDP mitigation monitoring and reporting program. It will thus continue to be a binding mitigation commitment of LBNL. Under CEQA case law, however, when the lead agency contributes fair share funding to a mitigation measure that will be carried out by another entity, there must be some evidence of a reasonable plan in place in order for the lead agency to conclude that the adopted mitigation will reduce the impact to a less than significant level (City of Marina v. Board of Trustees of the California State University (2006) 39 Cal.4th 341). LBNL will reevaluate its conclusion that there is not feasible mitigation for this intersection, and will retain and fund a consultant to perform that reevaluation. However, given that LBNL has evaluated all of the potential mitigation that has been suggested and concluded that mitigation is not feasible, and given the absence of a City plan for such improvements, it cannot be determined at this time that this impact will be mitigated to a less than significant level. Accordingly, this impact would still be considered significant and unavoidable, but LBNL shall fund the study pursuant to the TDM program, and would contribute to fair share funding which, if feasible mitigation is identified and a plan to proceed with that mitigation is implemented, would mitigate this impact to a less than significant level.

LRDP TRANS-1d: LBNL shall develop and implement a new Transportation Demand Management (TDM) Program to replace its existing TDM program. This enhanced TDM Program has been drafted in consultation with the City of Berkeley, and is proposed to be adopted by the Lab following The Regents' consideration of the 2006 LRDP. The new draft proposed TDM Program is attached to this EIR as

Appendix G. The proposed TDM Program includes several implementation phases tied to the addition of parking to LBNL. The final provisions of the TDM Program may be revised as it is finally adopted but will include a TDM coordinator and transportation committee, an annual inventory of parking spaces and a gate count, a study of more aggressive TDM measures, investigation of a possible parking fee, investigation of sharing services with UC Berkeley and an alternative fuels program. The TDM program shall also include funding of a study to reevaluate the feasibility of mitigation at the Hearst and Gayley/LaLoma intersection. The new draft proposed TDM Program also includes a requirement that LBNL conduct an additional traffic study to reevaluate traffic impacts on the earliest to occur of 10 years following the certification of this EIR or the time at which the Lab formally proposes a project that will bring total development of parking spaces pursuant to the 2006 LRDP to or above 375 additional parking spaces.

LRDP TRANS-3: LBNL shall develop and maintain a transportation plan designed to ensure that the current balance of transportation modes is maintained. This plan shall include 1) maintaining the same (or lesser) ratio of parking permits and parking spaces to average daily population (ADP), and 2) ensuring that levels of shuttle bus service and provision of bike racks on shuttle buses are sufficient to accommodate projected demand.

LRDP TRANS-8: LBNL shall implement Mitigation Measure TRANS 1a (work with UC Berkeley and the City of Berkeley to design and install a signal at the Gayley Road/Stadium Rim Way intersection; LBNL would contribute funding on a fair-share basis, to be determined in consultation with UC Berkeley and the City of Berkeley, to install the signal) and Mitigation Measure TRANS 1b (work with the City of Berkeley to design and install a signal at the Durant Avenue/Piedmont Avenue intersection, when a signal warrant analysis shows that the signal is needed; LBNL would contribute funding on a fair-share basis, to be determined in consultation with UC Berkeley and the City of Berkeley, to install the signal and for monitoring to determine when a signal is warranted).

With the implementation of these mitigation measure, the intersections of Gayley Road/Stadium Rim Way and Durant Avenue/Piedmont Avenue would operate at LOS B or better during both the a.m. and p.m. peak hours.

As explained earlier, the intersection of Hearst Avenue at Gayley Road/La Loma Avenue is currently signalized, and physical geometric limitations constrain improvements within its current right-of-way. Without the certainty that standard lane widths (and adequate storage lengths) could be provided, possible improvement measures were not relied on to judge that significant impacts would be mitigated to less-than-significant levels. Judging the success of possible mitigation measures with a conservative standard is reasonable, but in consultation with City of Berkeley staff, the Lab shall fund and conduct a

study to evaluate whether there may be feasible mitigation (with design standards acceptable to the City) at this intersection. That additional study will be conducted by the Lab as part of the TDM program set forth below as Mitigation Measure TRANS-1d. If such mitigation is determined by Berkeley Lab to be feasible, then Berkeley Lab shall contribute funding on a fair share basis, to be determined in consultation with UC Berkeley and the City of Berkeley, for the installation of the improvements. Analyses indicate that little can be done to mitigate future LOS conditions without acquiring additional right-of-way or prohibiting certain turning movements, such as minor left-turn movements. Therefore, no mitigation is available for cumulative impacts on this intersection.

LRDP UTILS-2: LBNL shall implement programs to ensure that additional wastewater flows from the Lab are directed into unconstrained sub-basins, as necessary and appropriate. LBNL shall continue to direct the Lab's existing western effluent flows into sub-basin 17-013. In addition, new flows at the Lab shall be directed into either sub-basin 17-013, sub-basin 17-304, unconstrained portions of sub-basin 17-503, or another sub-basin that has adequate capacity. Final design and implementation of these improvements shall be negotiated between the appropriate parties and shall undergo appropriate environmental review and approval. LBNL shall closely coordinate the planning, approval, and implementation of this mitigation with the City of Berkeley and the UC Berkeley, as appropriate.

LRDP UTILS-4: LBNL shall develop a plan for maximizing diversion of construction and demolition materials associated with the construction of the proposed project from landfill disposal.